The
SHIPPING WORLD

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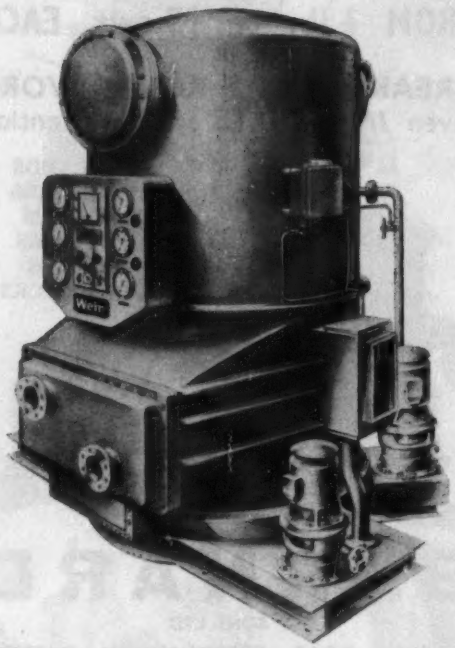

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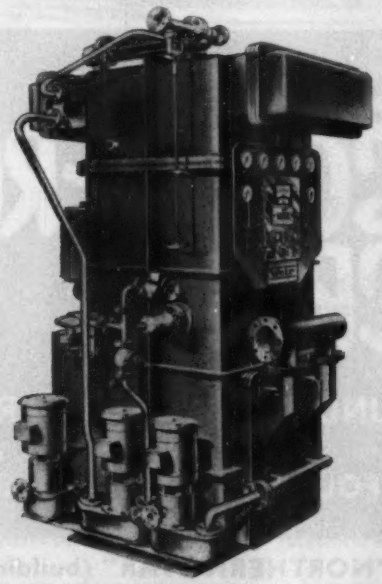

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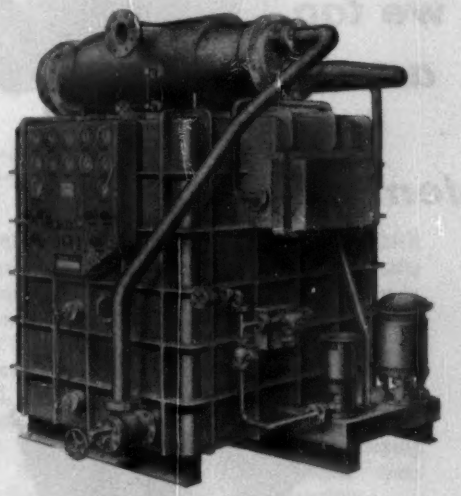

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THE SHIPPING WORLD

A DUAL-PURPOSE CUNARDER?

DESPITE the howling in the House of Commons, which was at once politically-inspired and nonsensical, it is difficult to disagree with the Cunard board in their decision to put off "for the time being" the taking of a final decision to order a replacement for the *Queen Mary*. When the decision made headlines in the national newspapers last week, most attention was focused on one of the reasons given by Sir John Brocklebank, the Cunard chairman, in making his announcement. This was the sudden fall in the profitability of the route which has occurred in the second half of this year, due to a fall-off in passenger traffic at a time of rising operating costs. It was stated that there is a growing trend towards the use of air travel by the potential first-class passenger. It is certainly difficult to judge from present trends in travel, influenced by the Berlin crisis and before that by the weakness of the dollar, how fast Atlantic travel by sea will decline. But it has really been obvious for a long time that the trend was downwards, and that if the Cunard company proposed to build a ship with a normal life of 20 years or more, they would have a white elephant on their hands before this period elapsed, because an essential feature of the *Q3* design has been that it would not be suitable for use on other routes if necessary.

The other reason given by Sir John Brocklebank for the postponement was that Cunard required more time to digest the full implications of the Vickers-Armstrongs/Swan Hunter tender, and this appears to provide the key to the future for the ship. It has always been a cardinal feature of Cunard policy that an Atlantic express liner could not be made suitable for use elsewhere, but now it would seem that this cardinal feature is no longer valid. Based on the Vickers/Swan specification, a smaller ship becomes possible technically and commercially. It may be recalled that the original *Q3* specification provided for a quadruple-screw ship with an overall length of 990ft, gross tonnage of 75,000 tons, draught of 30ft 3in and carrying 2,270 passengers. This could be used at a pinch for cruising in the winter season, but would not be suitable for other services. But the Vickers/Swan proposals proved something of an eye-opener for Cunard, partly on account of the efficiency of the underwater hull form but more particularly because of the light hull weight offered. On this basis, it is possible to design a smaller ship that is economical, although with some slight reduction in the speed margin available for making up lost time. It would be a twin-screw ship of 60,000 tons gross, 900ft long, and with the same draught of about 30ft. Its maximum power would be 100,000 shp, this being the largest power that can be transmitted on twin screws without cavitation problems.

A twin-screw ship is always more economical than a four-screw one, and this is one reason why the new concept is more attractive, but another and more important feature is that the reduction in length is sufficient to allow the ship to pass through the Panama Canal. (An article on Panama Canal limits appears on a later page.) The main technical obstacle to using the *Q3* on other routes is thus the large amount of cabin space per passenger thought essential for a first-class trans-Atlantic passenger liner. As it is in the first-class that passenger numbers are falling, while the cabin-class accommodation on the *Queens* is maintaining its appeal, the Cunard board may well be a little suspicious of this factor as a criterion of design. If they decide that so much space is not in fact essential, the way is open to design a ship that can go elsewhere if trans-Atlantic travel by sea fails, and this is clearly a much better proposition than the original idea.

The surprising feature about this whole business is the variation in design standards between different British yards that it makes evident. It was generally appreciated that the modern facilities available to the Vickers/Swan consortium would make them strong contenders for the order, and Sir John Brocklebank revealed that even when making an allowance for price rises during the period up to delivery (which was to have been in the spring of 1965), the Vickers/Swan tender would have been £1·2 mn below the £30 mn limit. But it now becomes clear that the Vickers-Armstrongs design department has benefited considerably from the building by the firm of the series of all-welded Orient Line passenger ships in the postwar years, from the *Orcades* through the *Oronsay* and *Orsova* to the *Oriana*, at a time when other British-built passenger liners were mainly riveted. Experience must be gained gradually, and this is what has been possible in this case. It may take other yards a little time to catch up.

Current Events

Scott in the Chair

Mr Jim Scott, in his initial year as secretary of the National Union of Seamen, has handled his first annual general meeting with a firm hand. His report to the meeting was a vigorous document, which could have left no one in any doubt as to where he stood, and he was equally firm when speaking extempore on subsequent days. In these days when trade union principles are apt to be all take and no give, it is easy to be suspicious of the union leader who presses hard for his men: so often he appears to see only one side of the picture, and is oblivious of the economic facts of life. But Mr Scott does not fall into this category. When the question was raised of the abolition of the penal clauses in the Merchant Shipping Acts, he told the meeting that the biggest drawback to the repeal of the penal clauses was the actions of the union's own members. "Since last year we have had innumerable reports of complete breaches of discipline of every type: it has verged in many instances on mutiny". There were pickets from the National Seamen's Reform Movement outside the hall, trying to secure the holding up of the *Empress of Britain* over the dismissal of one man. Mr Scott told the meeting that three men were sacked from the ship. He took up the matter with the owners, and two men were reinstated: "for the other man we had no case at all". As he said in his report, Mr Scott's first task is to unify his membership, and the easiest way to do this in any union is to take the part of the extremists. It is to his credit that he has not done so.

More Subsidies for Airlines?

Supersonic air travel foisted on to unwilling airlines by Governments seeking prestige—this was the forecast given by Sir William Hildred, director general of the International Air Transport Association, when speaking on Monday at the Association's annual meeting in Sydney. Sir William suggested that the supersonic transport now seemed inevitable because it had become a matter of declared national prestige for governments. But he contended that those governments which decided such an airliner was necessary should face the full consequences of that decision. If they wanted prestige they must be prepared to pay for it: there would not be enough airlines and enough passengers to foot the bill. So it seems that the taxpayer, British, American or French, is to be asked to contribute still further to maintain his country's commercial aviation. Some airlines—notably BEA in the European sphere—have recently shown that it is possible to make a profit while operating an airline, and with some measure of stability it seemed that others would not be long in following suit. But the supersonic transport will put an entirely different complexion on the picture. In contrast to the past, this is not an aeroplane that the airlines want. We have already had the chairman of BOAC saying: "I do not want a supersonic aircraft, but if other airlines have one then BOAC must have one too." Obviously, as Sir William says, the supersonic airliner will come into being just because one Government is frightened that it will lose face if it does not produce such a machine. Then there will be another "keeping up with the Jones's" buying spree, just as when the big jets first emerged. But there will be one big difference. Most of the big jets were financed by insurance companies or banking houses: this time it will be the public who will foot the bill.

Inside the "Transvaal Castle"

In passenger ship interior design and decoration, as in all matters of style and taste, there are few absolutes, lots of viable opinions and various ways of answering the broad challenge presented. The only real criterion of success is the pleasure given to the largest number of passengers throughout the ship's life. That is almost impossible to measure and is, anyway, subject to changes in fashion and to variations in the majority taste of passengers on different routes. Current British passenger liner design probably presents in its relatively few examples as wide a variety of general styles as may be found in any country or any period. There is the "contemporary" style of the *Oriana* and *Canberra*. There is the neo-antique of the *Sylvania*. And quite different from either will be the new Union-Castle liner *Transvaal Castle* when she goes into service next January. A glimpse of what is to come was afforded the other day at a party which the company held at Rotherwick House, to show off the fine model of the ship produced by Bassett Lowke (it figures in a brilliant bit of photo-montage reproduced elsewhere in this issue) and to introduce some of the designers and artists responsible for the public rooms and cabins. With her fairly large funnel placed where funnels are wont to be, nestling behind a stepped and generously curved superstructure, the ship presents outwardly the conventional Union-Castle design which must please many and give offence to none. Internally much the same applies. The guiding spirit has been supplied by the same combination that shaped the interior of the *Windsor Castle*—Mr Bernard Cayzer, a director of the owners, and Miss Jean Monro, interior decorator and designer, who on this occasion has shared some of her responsibilities with Mr Tom Parr.

Neo-Baroque?

Though it would be wrong to ascribe a stylistic tag to the interior of the *Transvaal Castle* at least until it can be seen in the flesh, so to speak, one that might well be evoked by the descriptive forecast issued by the company is neo-baroque. It tells of wrought iron work "used extensively" in the dining room "to give the feeling of being outside rather than inside"; of a series of trellis work arches in the "Orangery" with orange tree sprays in "metal holding candle lights" and cane backed chairs and low tables with "plastic tops designed to give the appearance of marble"; of furniture in one room of modern design "mostly executed in stainless steel" with "Regency style draperies" and "period furniture" in the library, the chairs being upholstered in black hide with gilt nails; of the Golden Room, designed "on archaic Persian motifs" with a series of arches and lit by "golden lanterns hanging from a golden central ceiling"; of "the Cellar Bar and the Vineyard" with wall decorations conveying a "realistic impression of racked wine bottles", and one wall having the appearance of rough stone work and the floor the appearance of marble. The interior of the *Transvaal Castle* promises not to be dull. But the designers would surely disclaim any accusation that oddity has been sought for its own sake, and they show a disarming confidence in the chosen artistic criteria. Much of the interior is sure to give pleasure to many. Whether some of it will offend the purist and whether desirable measures of harmony and simplicity have been achieved, only the completed ship can show. The pudding will take 25 or more years to eat, so final proof must wait a long time, and even then may be elusive.

Marine Art at the Guildhall

As a subject, the sea does not seem to have attracted the type of artist who delights in distortion. Certainly the exhibition of the Society of Marine Artists, now on view

at the Guildhall, London, shows no signs of this trend. The styles that can be seen are certainly varied, but all are concerned with exploring the various aspects of reality. To this generalisation there is, however, one exception. In order, presumably, to add impressiveness to ships, some artists magnify their vertical dimensions: indeed there is in print at least one book on drawing ships which advocates this practice. At the exhibition it found few exponents—the most notable example was a view of the *Oriana* in dock—and for those accustomed to seeing ships in the flesh the work in this category was shown up by the pictures on either side. Oils predominate over water colours, as always at the exhibition, but this year there are some very successful water colours on view. Among the latter, incidentally, are three by Capt A. D. Duckworth, the secretary of the Royal Institution of Naval Architects. Two are impressions of the Battle of the Falklands and the Battle of Jutland, at both of which he was present.

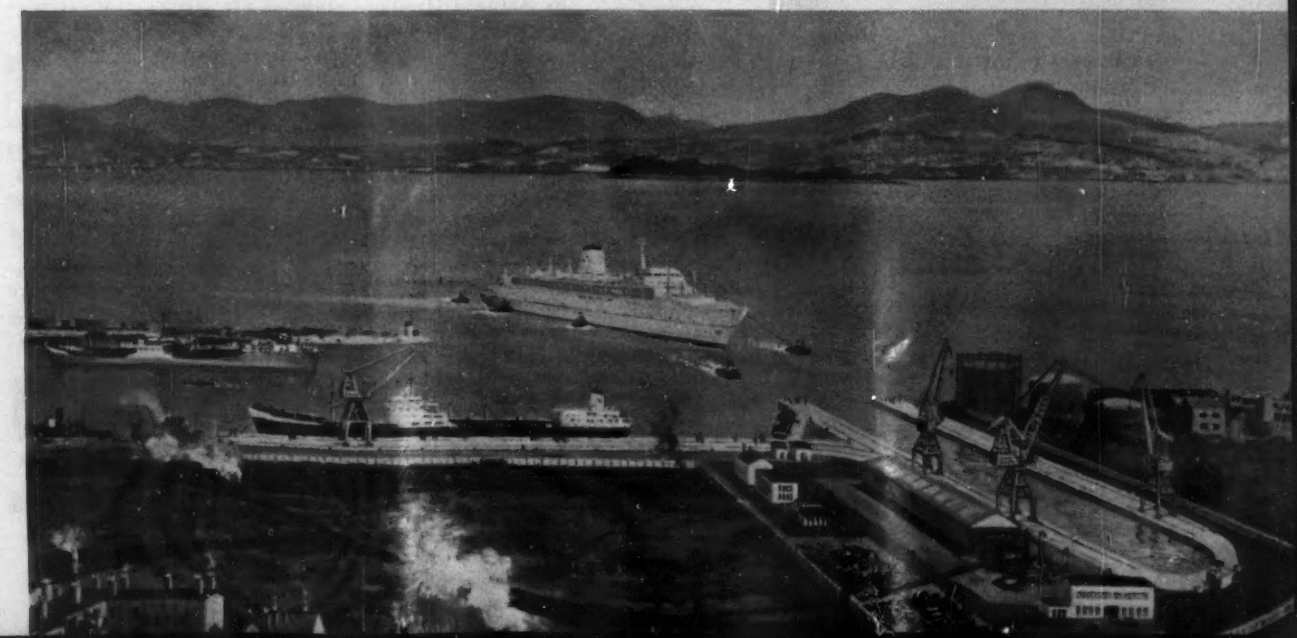
Port Labour—A Hopeful Move

SOMETHING MUST be done about the dock labour situation—something that will change the pattern of ill-will, non-cooperation, irresponsible strike action, resistance to mechanisation and to anything new, the general pulling in different directions. It is easy to apportion blame and to make exhortations. Both are futile. That is why a positive move by the National Joint Council for the Port Transport Industry towards further decasualisation of dock work is to be welcomed. It takes the form of a policy directive prepared by a working party set up by the council last June which is being sent to the joint local committees, and asks them to report by the end of this year on what they think might be done in their own ports in the light of experience in the fluctuations in demand for labour. "The time has come," it says, "for a fresh and bold advance." Among the signatures on this document are those of Mr A. J. M. M. Crichton, chairman of the National Association of Port Employers, and Mr Frank Cousins, general secretary of the Transport & General Workers Union. The idea is to preserve the Dock Labour Scheme but to extend the weekly basis of employment wherever possible in order to iron out wide fluctuations in actual employment and in earnings and to achieve much greater mobility of labour. The statement notes that "failures to adopt modern methods in this key section of transport damages the economy" and that "the combined effect of the casual features of the docks industry has meant that the industry has failed, too often, to meet the legitimate needs of its customers for service". Obvious enough truths; but it is new to have them backed by the signatures of the general secretary of the T. & G.W.U. The policy directive also mentions the need to abolish restrictive practices, to make the fullest possible economic use of mechanical aids, and to adopt shift systems where appropriate. A lot of built-in resistance must be overcome before these essential steps of progress can be made. But if Mr Crichton was right when he said earlier this month that the root cause of the trouble was casual employment, this new move by the National Joint Council carries with it the first real promise that something may be done.

Work Starts on Clyde Dock

THE Firth of Clyde Dry Dock Co Ltd began site clearance for the new graving dock on the Clyde at Greenock on October 16, thus launching a project which has been in the making for many years and which was ultimately achieved by cooperation between 12 industrial sponsors working with Government assistance. Due for completion in 2½ years time, the dock is already assured of the maximum of support, according to General Sir Gordon Macmillan, chairman of the consortium. A survey has been completed to determine potential customers, and assurances have been given that the new installation will be fully occupied immediately on completion. The total cost is in the region of £4 mn. The dry dock will be 1,000ft long and 150ft wide between side walls, with 145ft width at entry. There will be a wet berth 800ft long and ultimately 1,300ft long, with 37ft draught. Cranage and all services will be on a scale suitable for the type of work proposed. According to General Sir Gordon Macmillan, there are only five docks of comparable dimensions in the world, making this Clyde development a major advance. The commencement ceremony was carried out by Mr John S. Maclay, Secretary of State for Scotland, who stressed the vital importance of this development in the future expansion of Clyde industry. It had no doubt been hoped on the Clyde that one of the first users of the new dock would be the new Cunarder, *Q3*. This is now improbable; but there will be plenty of other work available.

Reproduced below is an impression of the Clyde graving dock as it will appear when completed. The view is looking north across the Clyde with the entrance to Great Harbour on the left. A tanker is shown alongside the wet berth, with a Canadian Pacific liner about to enter the dock



ON THE "BALTIC"

END OF SEASON GRAIN CHARTERS

By BALTRADER

A TRAMP shipowner would be less than human and a poor business man into the bargain if his basic object in life was not to seek out markets where tonnage was scarce and cargoes plentiful, and extract from the charterers concerned the highest rates the business will stand. Certainly he knows from experience that charterers have little sympathy for owners when the boot is on the other foot, and so the up and down battle of the freight market goes on. In recent weeks, however, the markets have temporarily achieved a measure of stability, although this is not to say, of course, that profit margins in all directions are anything like equal. Generally speaking, the best paying freights have been out to the Far East as an inducement to owners to choose that direction in spite of comparatively poor return prospects.

Occasionally, towards the end of the St Lawrence season, charterers get behind with their grain shipments and an opportunity does occur for owners to apply pressure and secure worthwhile rate improvements. Lately there have been signs that a squeeze might develop on charterers this year, and this view has been encouraged by the knowledge that around a quarter of a million tons of grain was scheduled for late season shipment from the St Lawrence to Poland. In fact, this chartering programme to Poland got under way last week but, from owners' point of view, the rates paid so far have been rather disappointing, and once again tankers have shown active interest and done much to keep the rates in check. Nevertheless, there are still about six weeks to go before normal St Lawrence navigation ends, and there may be a last minute flurry of fixing at better rates before the close. One cannot help feeling, however, that the grain merchants, who are nimble fellows, will not get caught and owners main hope probably lies with one of the foreign government chartering organisations who may be forced to take a few last minute St Lawrence vessels to complete a large loading programme.

The tanker invasion of the dry cargo trades continues to be a talking point on the market, and the recent fixture of a new 30,000-tons vessel for eight consecutive voyages from the U.S. Gulf to the Near Continent at $4 f.i.o. created considerable interest. These voyages do not commence until next February and the rate is approximately 20 per cent below that being paid for a single prompt cargo today. During the course of the charter, this one vessel will lift the equivalent of 24 Liberty-size cargoes, and the knowledge that such ships are available is strengthening the hand of grain merchants enormously at the present time.

Scope for 20,000-tons Bulk Carriers

The 14/15,000-tons shelterdeck vessel is now quite commonplace in the world's freight markets, but in recent years a number of owners, particularly the Scandinavians and Greeks, have gone a stage further and built 20,000-tons single deck bulk carriers. That there is scope for tramp ships of this size there can be no doubt, especially when fully fitted with cargo gear, but their economic success would have been even greater had tankers remained fully employed in the oil trades. A 20,000-tons bulk carrier is obviously ideal for grain and can readily be fixed from the U.S. Gulf to the Near Continent, for example, but tankers have knocked the bottom out of this particular market, even though today's rate of about $5 f.i.o. is $1½ or more over the level current at one time last summer. Wherever possible the owners of big bulk carriers tend to look to those trades where large ships are favoured but where tankers cannot compete. Examples of this are the Hampton Roads/Japan coal trade, in which such vessels can and do operate on a consecutive voyage basis with a return trip in ballast from Japan after each discharge. Many ore charterers also favour outsize dry cargo vessels which operate, for example, from Chile to the Continent and from South Africa to Japan. Nevertheless, it will be a happy day for the bulk carrier owners if and when the oil trades are able to absorb all the available tanker tonnage. It may not be too difficult to fix a 20,000-tons ship today, but the more business the merrier is owners' motto, for it is difficult not to be worried when you have a vessel of this size unfixed and running prompt.

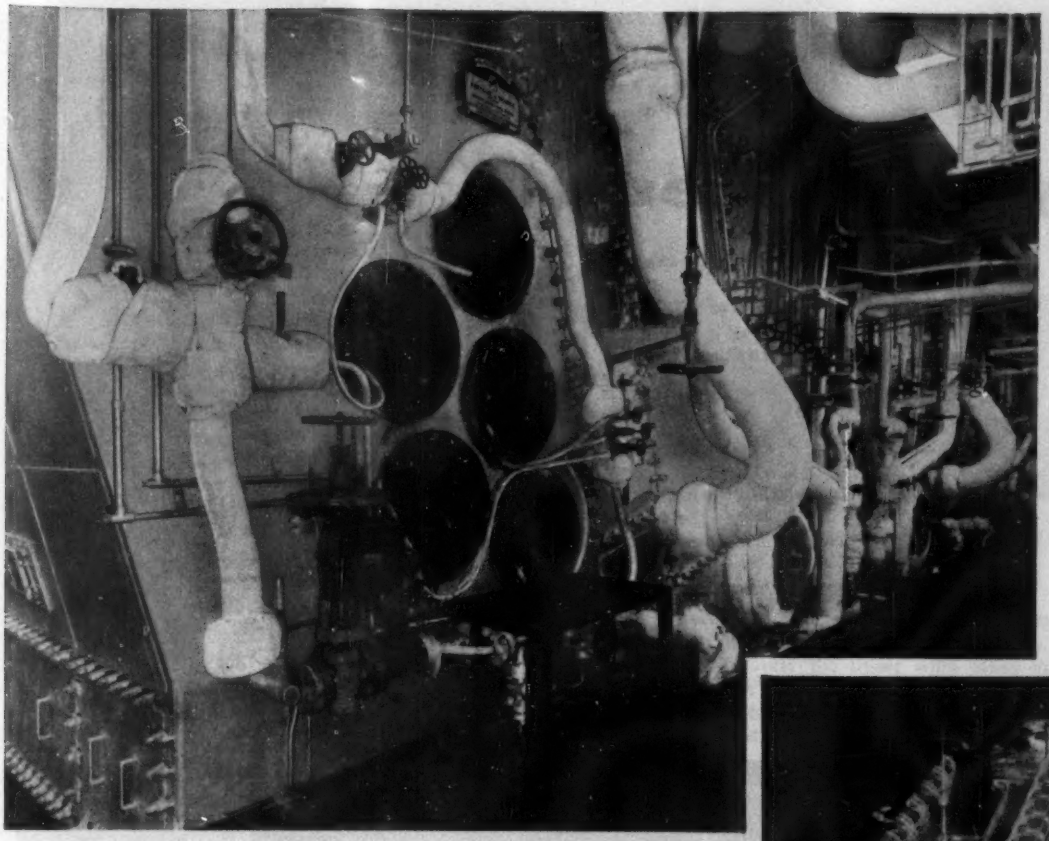
The Freight Markets

The main feature of the freight markets last week was the heavy chartering of tankers in the tran-Atlantic trades. Fixtures included the 17,000-tons *Hoegh Skean* with heavy grain from the St Lawrence to Poland at $5.60 f.i.o., November loading, and the *Tritonica*, a vessel of similar size with heavy grain from the St Lawrence to Antwerp/Hamburg range at $6.40 gross discharge, also November loading. There was also grain inquiry for tankers from the St Lawrence to India and the *Transarctic* was fixed with 16,000 tons of heavy grain to Bombay at 63s. gross discharge, November 1/15. A 30,000-tons tanker the *Samson* was fixed with heavy grain from the U.S. Gulf to Antwerp, Rotterdam or Amsterdam at the lump sum equivalent of $4.90 f.i.o., Nov. 20/Dec. 10.

In the Hampton Roads coal trades the *Resolute*, a vessel of 19,000-tons capacity, was fixed for two consecutive voyages to Antwerp, Rotterdam or Amsterdam at 31s free discharge for the first voyage, 31s 6d for the second, commencing November, and the 14,000-tons *Havkatt* was taken for two consecutive voyages from Hampton Roads to Japan at $9.20 free discharge with 6 days all purposes shinc, commencing January/February. Scrap rates to Japan showed no change and earlier in the week the *Hera*, 9,500 dwt for cargo, 475,000 cu ft bale, was fixed from the U.S. North of Hatteras at $140,000 f.i.o., November 1/15. The River Plate grain market continued quiet but fixtures included *Christen Smith*, 67ft guaranteed, to Antwerp/Hamburg range at 81s, option U.K. at 86s, December 20/January 15.

On the South African market fixtures included *La Estancia* with bulk maize from Lourenco Marques to Glasgow at 68s 9d, November 25/December 15, and the *Aristidis* takes bulk maize ex bags from Beira to Glasgow or Leith at 75s, November 15/30. There was further activity on the Australian market and fixtures included *Ellin* with bulk wheat ex silo from Eastern States Australia to Italy, excluding Ravenna, at 72s 6d free discharge, December 1/30, and a British vessel with a similar cargo from Geelong or Sydney to the Spanish Mediterranean at 75s free discharge, option Spanish Atlantic at 77s 6d, November 11/December 5. The *Huntsland* takes coal from Newcastle, N.S.W., to Japan at 41s 6d f.i.o. and trimmed, November 20/December 20.

Timecharter fixtures included *Trelawny* (ms), 9,185 dwt, 510,000 cu ft bale, 12½ knots on 13½ tons fuel oil, at 24s 6d per ton, delivery Hamburg or Bremen in charterers' option, redelivery Caribbean, trip out, October 28/31.



Boiler room of Principe Perfeito, with 3 Babcock Selectable-Superheat boilers.

Flashback. One of the Babcock boilers being installed in Principe Perfeito (by two Babcock level-luffing jib cranes) at the Neptune Yard.

Pride of Portugal's merchant marine

Principe Perfeito

20,000 tons gross
Cia. Nacional de Navigacao

This largest ship in Portugal's merchant service and also the biggest yet built at the famous Neptune Yard of Swan, Hunter & Wigham Richardson, adds lustre to the impressive list of important new vessels, with such names as Windsor Castle, Serenia and Northern Star, that are equipped with BABCOCK *Selectable-Superheat boilers* for main propulsion.

Principe Perfeito has three of these boilers, built under licence at the Neptune Engine Works and designed for steam conditions of 500 lb./sq. in. and 800°F; with a total evaporation of 246,000 lb./hr.

Boiler equipment supplied by the Babcock organisation included the automatically-controlled, air-operated, steam soot-blowers and Bailey automatic combustion controls.

BABCOCK *Marine* BOILERS

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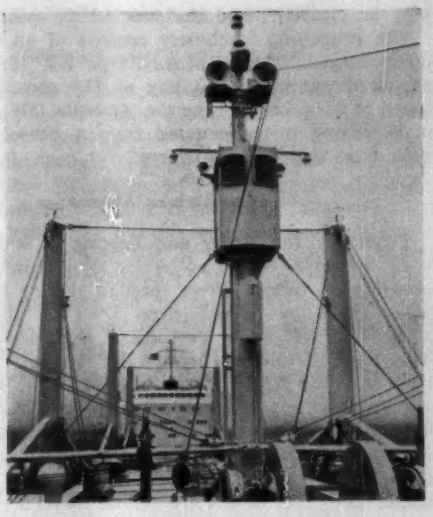
The "Scandia Clipper"

BULK CARRIER WITH SHAFT-DRIVEN GENERATOR



An enclosed crow's nest is mounted on a short mast on the forecastle

THE Swedish shipowners Rederi AB Clipper, Malmö, have taken delivery of a bulk carrier of 25,100 dwt. This vessel, the *Scandia Clipper*, has been built by Kockums Mekaniska Verkstads AB, Malmö, and is the second in a series of bulk carriers of a new type. A feature of interest is the propeller shaft gear-driven alternator which has been fitted in order to improve efficiency and reduce maintenance costs. This alternator supplies the ship's full electrical requirements while she is at sea. Generators driven off the propeller shaft are becoming increasingly popular. Kockums has already carried out one installation of this sort in the tanker *Butmah*, in 1957. The main propelling machinery in the *Scandia Clipper* comprises an eight-cylinder Kockum-M.A.N. diesel engine designed for a contract speed of 15½ knots.

The principal particulars of the *Scandia Clipper* are as follows:—

Length o.a.	577ft 4in
Length b.p.	540ft
Breadth moulded	74ft 9½in
Depth	48ft 7in
Draught	34ft 2¾in
Deadweight	25,100 tons
Gross	16,500 tons
Net	9,327 tons
Machinery output	9,300 tons
Contract speed	15½ knots
Cargo capacity (grain) ...	1,142,100 cu ft
Ballast capacity	7,899 tons
Bunker capacity	1,689 tons

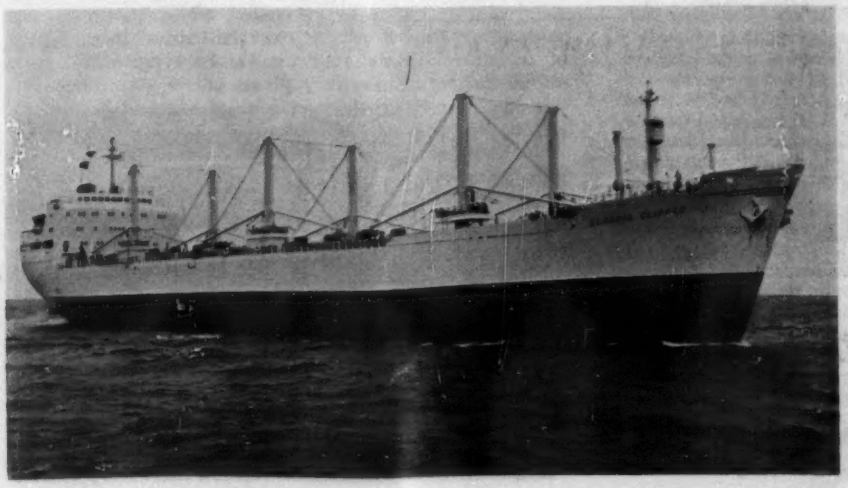
The *Scandia Clipper* is of all-welded construction, and complies with the special requirements for the Suez and Panama canals and the St Lawrence Seaway. She has three pillarless holds with triangular cantilever ballast wing tanks below the deck, and sloped bottom wing tanks extending over the whole length of the cargo zone, enabling the vessel to be self-trimming. The lower wing tanks are in direct connection with the cellular double bottom. A pipe tunnel runs between No 1 D.B. tank and the engine room.

The upper wing tanks Nos 2 to 5 can be used also for the carriage of diesel oil, which is handled by the ballast pump. Alternatively the upper wing tanks can be used for the carriage of grain, and are each provided with three small hatches. The six main hatchways have Kockums hydraulically-operated covers.

Electric and Hydraulic Winches

A short mast with a crow's nest is mounted on the forecastle, a radar mast is sited aft, and there are six unstayed derrick posts, Nos 1 and 6 winches are of 8 tons capacity and the remainder of 6 tons. Six of the winches are electrically-driven and six hydraulically-driven; and they are placed, in pairs comprising one of each kind, on platforms between the hatches. The mooring winch aft and the capstan are also hydraulically-operated.

Extensive precautions have been taken against fire. There is a central fire alarm system controlled from the wheelhouse, a CO_2 fire-extinguishing system in the cargo spaces with a smoke detector alarm on the bridge, a total flooding system in the engine room, and numerous portable extinguishers. The usual fire lockers have been replaced by three easily accessible fire stations situated in the forecastle, on C-deck and in the poop. These are equipped with a safety lamp, air breathing apparatus, gas-mask, axe, safety belt, asbestos suit with protective gloves and shoes etc. There is a jet-pipe, a foam-making branch pipe and two hoses, one for training purposes and one for ordinary use. The latter is of polyester plastic and is stored in a transparent plastic bag. As an additional precaution a spring-operated bell is fitted in each bunk, ringing as soon as the temperature exceeds 125 deg. F, in case anybody falls asleep in his bunk while smoking a



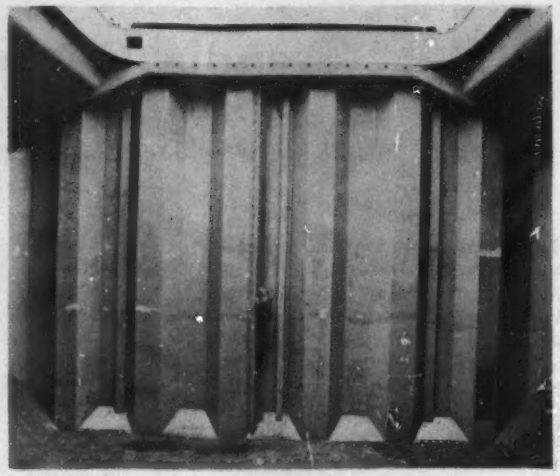
The "Scandia Clipper" swinging compasses while on trials

pipe or cigarette, and the bedclothing catches fire.

The propelling machinery consists of an eight-cylinder turbocharged Kockum-M.A.N. type KZ 78/140 C diesel engine developing 9,300 bhp at 115 rpm. The contract speed is 15½ knots. Like the *Atalante* (*SW*, 13.9.61), the main engine is manoeuvred from a console control installed on the lower platform.

Gear-Driven Alternator

Electricity for power and lighting is supplied at 440 volts, 3 phase, 60 cycles by an asynchronous alternator of 275 kVA output driven through gearing from the propeller shaft, two diesel-driven 375-kVA alternators and a harbour set of 56 kVA. The shaft-driven alternator has been developed jointly by Rederi AB Clipper, Kockums and ASEA. It is coupled to the shaft through step-up gearing and an air-operated flexible coupling, and maintains both voltage and frequency between half and full speed (85 rpm and 115 rpm), independent of engine speed variations. The cost of this type of alternator is higher than that of a conventional diesel-driven unit, but this cost should be amortised after about three years.



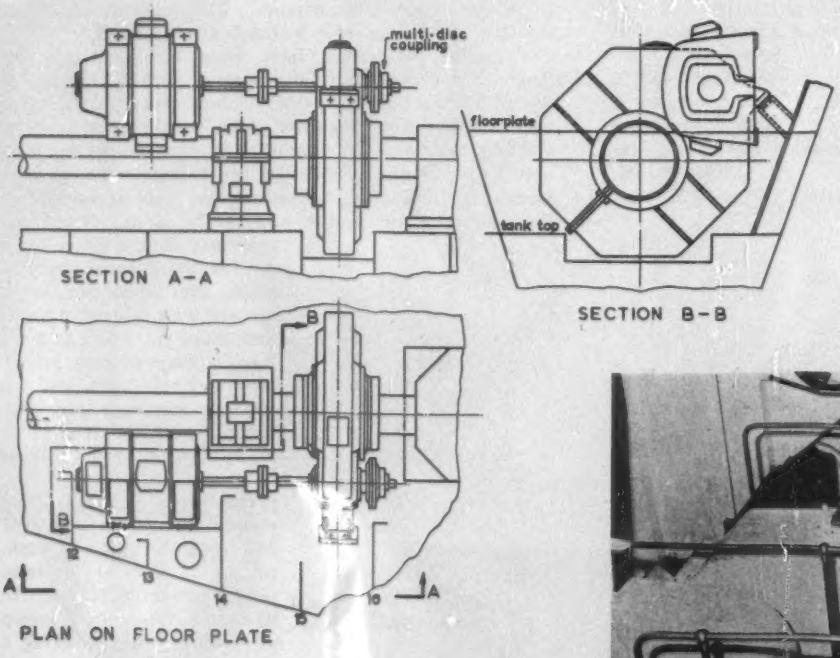
Inside one the holds, showing the under-deck ballast tanks and hoppering

Asynchronous Shaft Alternator

GEAR-DRIVEN UNIT IN THE "SCANDIA CLIPPER"

THE MAIN FEATURE of interest in the *Scandia Clipper*, described in the article above, is the shaft-driven generator installation. This makes use of an asynchronous generator to produce alternating current at the correct frequency of 60 cycles despite considerable variations in the speed of the propeller shaft. This is an alternative to the system used in the *London Independence* (described in our issue of 16 August 1961) in which direct current is generated by the shaft-driven unit and this is afterwards converted to alternating current. However, a converter set is in fact still required in order to control the frequency and output of the asynchronous alternator.

An asynchronous alternator is in essence an induction motor, used as an alternator and driven at over-synchronous speed. Under this condition the stator windings feed current back into the main supply. The rotor could in theory be of squirrel cage type, but if the output is to be controlled it must be a wound rotor, with the end connections taken out through sliprings to variable resistances. The asynchronous alternator has no natural frequency, and therefore must be used in conjunction with another AC machine. This sets the frequency, and the asynchronous alternator then takes wattless current from the mains to create the necessary rotating field in the stator, while the stator coils at the same time deliver power back again.



ABOVE: Layout of the shaft generator set

RIGHT: View looking aft, with the gearing in the foreground

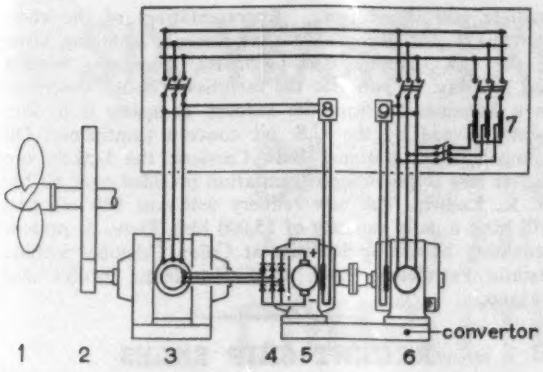


Diagram of the alternator installation

1 Propeller shaft
2 Gearing
3 Asynchronous alternator
4 Silicon rectifier
5 DC generator
6 Synchronous motor
7 Starting transformer
8 Automatic frequency regulator
9 Automatic voltage regulator

In the *Scandia Clipper* the asynchronous alternator, which is shown in the accompanying diagram (3), is geared to the propeller shaft. It runs at over-sychronous speed when the propeller shaft is rotating between 85 rpm and 115 rpm. The connections from the rotor are taken through sliprings to a three-phase silicon rectifier, the output from which is fed to the armature of a DC generator which forms half of the converter set mentioned above. If there is no excitation of the DC machine, the rotor circuit of the asynchronous alternator is short-circuited by the armature of the DC generator. With the DC generator fully excited the silicon rectifiers are blocked, making the alternator rotor circuit open. The impedance of the alternator rotor circuit can thus be altered from zero to infinity by altering the DC generator excitation.

The excitation is obtained from a frequency control unit (8) employing magnetic amplifiers. A decreasing frequency lowers the excitation enabling the asynchronous alternator to deliver more active power. Increasing frequency raises the excitation correspondingly. In this way the frequency control unit maintains a constant mains frequency of 60c/s for a propeller speed range of 85-115 rpm and for an active power not exceeding 220 kilowatts.

The DC machine is coupled to a synchronous AC machine which supplies reactive (wattless) current for the excitation of the shaft alternator as well as to the ship's mains. The synchronous motor has a normal rectifier exciter with a voltage regulator (9) of the magnetic amplifier type. It keeps the voltage within ± 1 per cent.

To facilitate parallel working, the frequency regulator has a characteristic of 4 per cent which corresponds to the speed drop of the auxiliary diesels. At the full output of 220 kW from the asynchronous alternator, the frequency regulator level is 4 per cent below the frequency of the asynchronous alternator under no-load conditions.

If the propeller shaft speed is less than 75 rpm, the shaft alternator cannot supply the necessary power at correct frequency. An auxiliary diesel must therefore be started and synchronised in case it might be necessary to decrease speed below "Half Speed".

At high propeller rpm the current in the asynchronous alternator rotor circuit must be high if the alternator is to be able to supply the required power, and in earlier designs the rotor power was dissipated in resistors. In this design the rotor power is fed to the armature of the DC machine, which then runs as a DC motor and supplies the alternator armature power back to the mains via the synchronous motor.

PANAMA CANAL LIMITS

Maximum Length and Draught

When a query as to the maximum size of ship that could safely transit the Panama Canal was recently put to The Shipping World, it turned out that exact information was surprisingly difficult to come by in London. It appeared that the passage of the prewar *Bremen* represented the longest vessel, that maximum beam was dictated by the lock width of 110ft, and the draught limitation by the depth over lock sills of 40ft salt water and 41ft fresh water. We could not, however, trace a recent authoritative statement on the subject by the canal company. Such a statement has now been published in the *Panama Canal Review* with the approval of the president of the company and the Marine Bureau director. It confirms the point about the *Bremen*, which had a length of 898ft. The widest ships to have transited the canal have been the U.S. battleships of the *Iowa* and *Indiana* classes, with beams up to 108ft 2in, but commercial vessels without the protection of heavy armour plating need a more generous allowance than under a foot on each side between ship and lock wall.

The widest commercial ship ever to transit was the *Sinclair Petrolore*, which was taken through with no appreciable damage, despite her 106.4ft of width and 789ft of length. The tanker made the transit only once, however, sinking off the coast of Brazil before a second transit could be attempted. The single transit was not enough to determine if the ship could have been safely transited on a regular basis or if she would have had to be turned away because of too great risk of damage to her side plating.

The sizes of the largest merchant ships which are currently transiting the canal in a routine manner and with little or no damage are 102ft beam by 800ft length by 36ft 6in draught tropical fresh water. The length may be extended to 850ft without incurring any additional difficulty. This length is controlled by the radius of turn in the present canal cut.

Canal Widening

The canal is being widened from 300ft to 500ft within a few years. The length of the ship can then be extended to 925ft, controlled by the length of the lock chambers, without encountering any undue difficulties.

"Based on the rather extensive experience that we have had to date with ships of beam 102ft by 800ft length by 36ft 6in draught, tropical fresh water, it appears that it might be feasible to transit, expeditiously and safely, ships with beams as wide as 104ft, with lengths up to 850ft, and draughts of 36ft 6in. However, since we have had very little experience with merchant ships of this size, we would have to reserve final judgment until actual transits had been made."

There is a complicating factor in the matter of beam versus draught, which is presented by fillets or batters that are present on the bottom of the lock walls. Ships wider than 100ft beam with draughts deeper than about 35ft will start to encounter interference in the area of the turn of the bilge, particularly if they have bilge keels installed in this area. In short, the wider the ship, the less the allowable draught, unless the ship's hull form is built to accommodate these fillets.

It is normal procedure to limit the draught of a very large ship on its initial transit to about 33ft until its handling characteristics are established. Assuming that successful transits are made at 33ft, succeeding transits at 1ft increments of draught would be permitted until the draught of 36ft 6in is attained, each increment depending upon the successful negotiation of the canal at the previous draught. The above draught restrictions apply when Gatun Lake is at 85ft or above, which is normally from about July until the end of January. During dry seasons of exceptionally dry years when Gatun Lake falls below about 84ft above sea level, draught restrictions may be applied, generally during the months of March, April, and May, to as little as 35ft.

Oil Topics

DREDGING THROUGH THE NAB SHOAL

An oil company is planning to dredge through the extensive shoal by the Nab Tower which limits the draught of ships entering Spithead. The Esso Petroleum Co Ltd wishes to bring its new 77,000-dwt tankers to the Esso refinery at Fawley. These ships draw 47ft when fully laden, while the maximum draught for a ship to cross the Nab Shoal at high water is 41ft at neap tides and 43ft 6in at spring tides. The minimum depth of water needed by these large tankers is in fact 55ft. The height at neaps is about 10ft, and a dredged depth of 45ft will be sufficient because the double high water in the area gives loaded tankers time to get up to Fawley and berth on top of the tide. There is at present about 39ft of water on the Nab Shoal, so that the dredging of 6ft will give the desired depth.

The areas to be dredged are shown above

500-Yard Channel

A channel 500 yards wide and 2,100 yards long is to be cut through the shoal. It will involve the removal of more than 7 mn cubic yards of spoil, will cost £1 mn, and will take 18 months to complete. Similar work will be necessary alongside the Fawley jetties and in the approaches to them from the main navigational channels, but here the work is comparatively simple. It is in sheltered waters; the nature of the bottom is such that conventional bucket dredging can be used; and experience has shown that little or no maintenance will be needed to keep the desired depth. The work at the Nab is a different proposition. The area is virtually open sea, the bottom is such that a special type of dredging will be required, and the extent to which the channel would silt up again after cutting cannot be determined with certainty until at least a part of it is dredged to the required depth. Preliminary work already carried out includes the test dredging of a small area, and seabed investigation by boreholes.

Bunkers from Panama

When the new refinery being built near Colon by Refineria Panama S.A. comes into operation next January it will include a bunker station offering fuel oil, intermediate and diesel fuel. Representatives of the company have just begun a tour of Europe, including visits to the U.K., Netherlands, Germany, Denmark, Sweden and Norway, to publicise the facilities. Though described as a Panamanian firm, the refinery company is in fact jointly owned by the U.S. oil concern Continental Oil Company and National Bulk Carriers, the tanker, ore carrier and shipbuilding organisation presided over by Mr D. K. Ludwig. The new refinery will cost $30 mn and will have a daily capacity of 55,000 bbls. Firms at present providing bunkering facilities at Colon/Cristobal include Asiatic Petroleum, Esso, Gulf Petroleum, Mobil and Texaco.

RECENT SHIP SALES

Cargo steamer *Spurt* (ex-*Henry Watterson*, 11,000 dwt, 7,226 grt, 4,470 nrt, built Jacksonville, Fla. 1943 by St. Johns River Shipbuilding Co) sold by A/S Lundegaard (Lundegaard & Sonner), Farstad, to Lebanese interests for about £145,000 with prompt delivery Haugesund.

Cargo steamer *Vimy* (ex-*Ville de Diego Saurez*, ex-*Colonel Vieljeux*, ex-*Empire Moulmein*, 9,804 dwt, 7,075 grt, 4,027 nrt, built and engined South Shields 1944 by J. Readhead & Sons Ltd) formerly owned as *Ville de Diego Saurez* by Nouvelle Cie. Havraise Peninsulaire de Nav., Havre, sold to Centromor, Warsaw, for $380,000 with survey passed September 1961. Buyers are keen to acquire other similar ships.

Cargo steamer *Blairspey* (ex-*Empire Spey*, ex-*Blairspey*, 6,475 dwt, 4,248 grt, 2,465 nrt, built Ardrossan 1929 by the Ardrossan Dry Dock & Shipbuilding Co Ltd) sold by Northern Navigation Co Ltd (G. Nisbet & Co), Glasgow, to Greek buyers for £64,000.

Cargo steamer *Andover Hill* (ex-*Fort Coulonge*, 10,384 dwt, 7,118 grt, 4,355 nrt, built Montreal 1943 by United Shipyards Ltd) sold by Ottawa S.S. Co Ltd (Syros Shipping Co Ltd) London to Marvenida Cia. Naviera S.A., Panama, and renamed *Louria*.

Motor coaster *Westray* (670 dwt, 499 grt, 232 nrt, built Aberdeen 1942 by J. Lewis & Sons Ltd) sold by Skibs A/S Westray (Jorgen Brunvall), Bergen, to Anders Stokka, Haugesund, and renamed *Westbay*.

Twin-screw motor ferry *Rustringen* (563 grt, 362 nrt, built Wilhelmshaven 1954 by Jadewerft G.m.b.H.), sold by Schiffahrts Ges. "Jade" m.b.H., Wilhelmshaven, to American buyers for DM 1 mn for tourist work in the Bahamas.

Twin-screw motor vessel *Ile Sainte Marie* (ex-*Lyngaa*, ex-*Titan*, 1,680 dwt, 1,106 grt, 540 nrt, built at Wesermunde in 1943 by Schiff. Unterweser) sold by Nouvelle Cie. Havraise Peninsulaire de Nav., Paris, to Zacharis Brothers & Vassilia & Co, Piraeus, and renamed *Fridiotis*.

Motor tanker *Harwi* (15,530 dwt, 10,094 grt, 5,831 nrt, built Sunderland 1952 by J. L. Thompson & Sons Ltd) sold by Kommanditselskapet "Harwi" (Rolf Wigands Rederi), Bergen, to Bulgarian buyers for about £300,000 on extended credit terms.

T2 tanker *Prometeo* (ex-*Broad River*, ex-*Lake Champlain*, 16,429 dwt, 10,434 grt, 6,271 nrt, built Portland, Oregon, 1943 by Kaiser Co Inc) sold by Grassi & Folcini, Genoa, to Liberian flag operators for $460,000 for conversion to dry cargo.

Cargo steamer *Modesta* (ex-*Huntress*, ex-*Empire Torridge*, ex-*Asiatic*, 3,700 grt, 2,144 nrt, built Burntisland 1923 by the Burntisland Shipbuilding Co Ltd) sold by Paulins Rederi A/B, Abo, to Yugoslav shipbreakers, for £17 14s per ton light displacement, with delivery Yugoslavia December.

Motor tanker *Texaco Nueva Andalucia* (ex-*Nueva Andalucia*, 9,981 grt, 5,713 nrt, built Hamburg 1940 by Deutsche Werft A.G.) sold by Texaco Norway A/S (H. C. Mathiesen), Oslo, to Norwegian shipbreakers for £91,000.

Cargo steamer *Clan Davidson* (8,047 grt, 3,305 nrt, built Greenock 1943 by Greenock Dockyard Co Ltd) sold by The Clan Line Steamers Ltd (Cayzer, Irvine & Co Ltd), London, to Hong Kong shipbreakers for £20 15s per ton light displacement.

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COMPLETELY STABLE

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Only this type of oil is completely stable under all conditions—completely free from separation and sludging problems. The special highly alkaline formula reduces cylinder wear to a minimum without causing harmful blading formations in turbo chargers. It guards against carbon deposits and keeps piston rings free.

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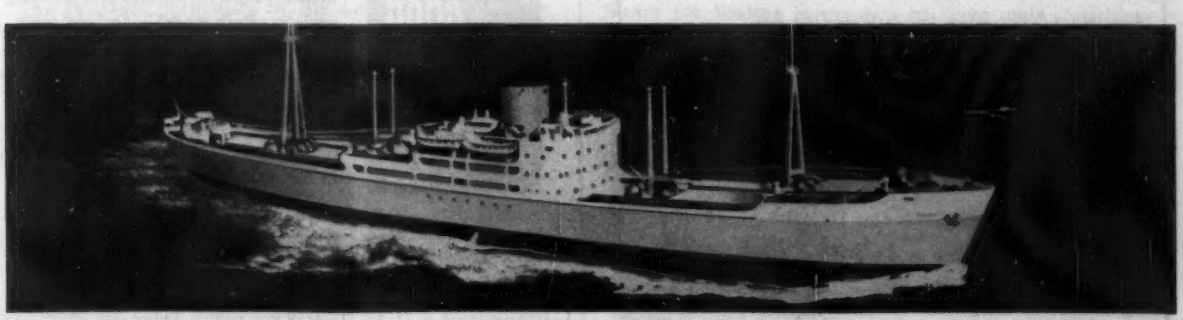
PROVED optimum wear reduction with all types of fuels.

PROVED to have the same consumption as conventional cylinder oils.

PROVED to minimise harmful carbon deposits.

PROVED effective performance in all types of engines.



PROVED IN SERVICE M.S. 'Lukala', owned by Compagnie Maritime Belge S.A., was the first vessel to use Caltex Super DCL and has used it continuously for the past six years. Conclusive proof of the excellence of this lubricant and its trouble-free qualities.

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THROUGHOUT THE WORLD
REGENT OIL COMPANY LIMITED, LONDON

REGENT

The "London Independence"

TWIN-SCREW TANKER WITH SHAFT-DRIVEN GENERATORS

THE TANKER *London Independence*, 34,050 dwt, built by Uddevallavarvet A/B, Sweden, has been delivered to her owners, London & Overseas Freighters Ltd, and has left on her maiden voyage to the Black Sea to load oil for Japan. The interesting feature of this vessel is the arrangement for obtaining electricity supply from two shaft-driven generators, one on each intermediate shaft. This method, described in THE SHIPPING WORLD of 16 August 1961, enables the owners to save about £17 in daily fuel costs, in comparison with diesel-driven generators of comparable output.

The *London Independence*, launched on 17 December 1960 and delivered on 11 September 1961, is otherwise of conventional design. She is the third vessel belonging to the owners' company to be fitted with shaft-driven generators, the other two ships being the *London Victory* and *London Majesty*, both oil tankers of 18,000 dwt capacity (*SW*, 1 October 1958).

The principal particulars of the *London Independence* are as follows:—

Length o.a.	698ft 3¾in
Length b.p.	650ft
Breadth, moulded	88ft
Depth, moulded	47ft
Draught	35ft 3¾in
Deadweight	34,050 dwt
Cargo hold capacity ...	1,620,000 cu ft
Dry cargo hold capacity ...	43,000 cu ft
Machinery output	15,000 shp
Speed	16¾ knots

The *London Independence* is of all-welded construction with the cargo space subdivided by two longitudinal bulkheads and nine transverse bulkheads into ten centre tanks and ten wing tanks on each side. The longitudinal bulkheads are of straight plating with longitudinal stiffeners, while the transverse bulkheads are corrugated. The main cargo pump room is located forward of the engine room, and contains four cargo pumps each of 1,000 tons/hour (water) capacity and three stripping pumps, each of 200 tons/hour (water) capacity. All seven pumps have been supplied by J. P. Hall & Sons Ltd.

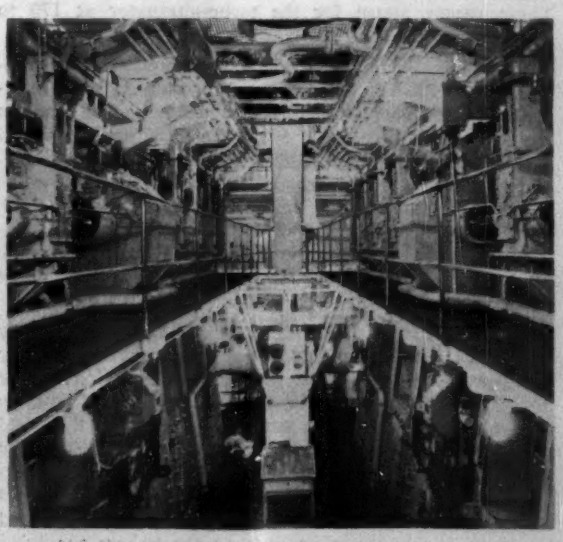
Cargo Pumps

The main cargo pumps are of the standard Hall two-stage type fitted with Flexibox seals, and having oil-ring lubricated plain bearings, the oil reservoirs being water jacketed. The intermediate shaft between the turbine and pump—the turbine is in the engine room—is fully floating, being fitted with Metastream flexible membrane universal couplings at each end. The stripping pumps are of the vertical duplex type.

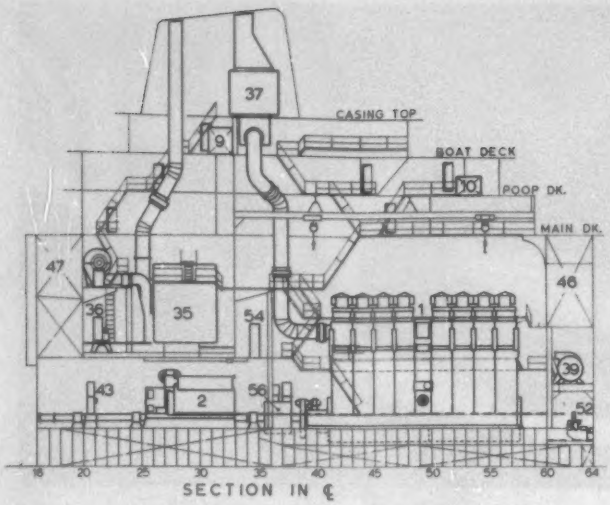
Each of the four geared steam turbines is rated at 750 hp with an output speed of 1,600 rpm and is fitted with a Hall hydraulic speed governing system. At the owners' request the remote-governed speed control is effected mechanically by extended spindles with handwheels at the top and bottom of the pump room. Local control is by means of a small handwheel mounted on the turbine.

Berger paints and compositions have been supplied for the underwater surfaces of the hull, the boottop, topsides, decks, superstructure and accommodation. All priming was done with "Hunterseal".

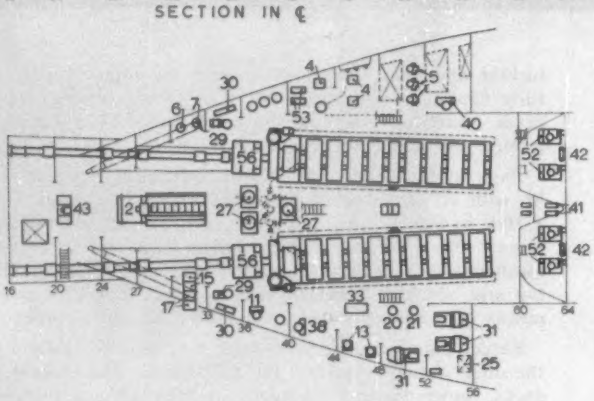
The propelling machinery comprises two eight-cylinder Götaverken type 760/1500 VGS 8 diesel engines built at Uddevallavarvet, each developing 7,500 shp at 112 rpm. Steam for heating is supplied by three main boilers arranged on a flat at the after end of the engine room. They have been supplied by Marshall & Anderson Ltd,

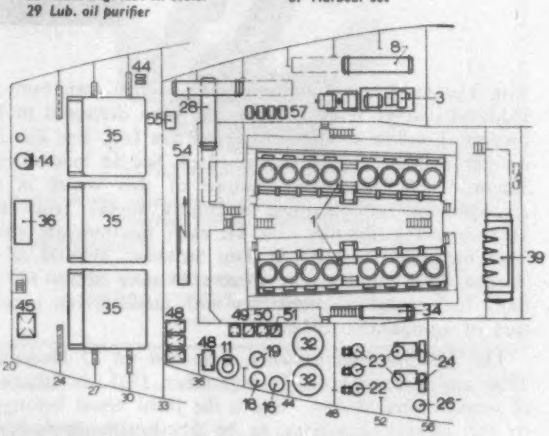


View looking forward between the main engines at camshaft level



1 Main engine
2 Diesel generator
3 Turbo-generator
4 Main eng. SW cool. pump
5 Main eng. FW cool. pump
6 Aux. eng. SW cool. pump
7 Aux. eng. FW cool. pump
8 Main eng. FW cooler
9 Extraction pump
10 Main eng. FW header tank
11 Bilge pump
12 Oily water separator
13 General service pump
14 Evaporator
15 Hydrophore pump SW
16 Hydrophore salt water
17 Hydrophore pump FW
18 Hydrophore fresh water
19 Hot water tank
20 Diesel oil pump
21 Heavy oil pump
22 Diesel oil purifier
23 Heavy oil purifier
24 Heavy oil heater
25 Sludge tank
26 Purifier manoeuv. tank
27 Main eng. lub. oil pump
28 Main eng. lub. oil cooler
29 Lub. oil purifier
30 Lub. oil heater
31 Manoeuvring air compr.
32 Air receiver
33 Butterworth pump
34 Butterworth heater
35 Boiler
36 Oil-burning equipment
37 Exhaust gas boiler
38 cool. water pump for aux. cond.
39 Turbo-condenser
40 Turbo-cond. cool. W pump
41 Turbo-cond. cond. pump
42 Air-ejector
43 Feed water pump
44 Exh. gas boiler feed pump
45 Hot well
46 Heavy oil daily tank
47 Boiler oil daily tank
48 Engine oil tank
49 Compressor oil tank
50 Turbo-oil tank
51 Paraffin tank
52 Cargo oil pump turbine
53 Refrig. coolant pump
54 Main switchboard
55 Transformer
56 Shaft generator
57 Harbour set





Machinery arrangement of the "London Independence"

and each has a heating surface of 4,520 sq ft. The working pressure is 150 lb/sq in. There are also two waste-heat boilers supplied by E. Green & Son Ltd, which have a total evaporation of about 12,000 lb/hour. These supply steam for the turbo-alternator at 170 to 260 deg C.

As stated, the electricity supply is unusual and comprises two 150-kW shaft generators, one on each intermediate shaft, supplying current to two 185-hp DC motors coupled in tandem to a 500-kW AC alternator which is also coupled to a steam turbine. There is also a diesel-driven 500-kW alternator. When at sea the DC motors and the steam turbine supply the electricity required. The shaft-driven generators have been built by the Sunderland Forge & Engineering Co Ltd, the steam turbine by De Laval Ljungstrom Turbine Co, and the diesel engine by the National Gas & Oil Engine Co Ltd.

The output from each shaft generator is coupled directly to one of the 185-hp motors through a circuit breaker giving overload and reverse current protection. The power input to each motor is maintained at any desired level by automatic current regulators which control the field strength of the motors and thus their speed. If the power delivered is in excess of that required, the speed decreases and more load is therefore taken up by the turbine and less by the shaft generators. This setting can be adjusted to give a steady steam pressure on the boilers supplying the turbine, and thus absorb all surplus steam obtained from the exhaust gases.

WORSHIPFUL COMPANY OF SHIPWRIGHTS

A Meeting of the Court of Assistants of the Worshipful Company of Shipwrights was held on October 19. Lady Ayre, wife of Sir Wilfrid Ayre, past Prime Warden, was admitted to the honorary freedom of the company in recognition of her husband's services to the company. The First Sea Lord, Admiral Sir Caspar John, was admitted to the honorary freedom of the company as a token of the esteem of the company and in recognition of his great services to the Royal Navy throughout his career. The Queen's Silver Medal for 1961 was presented to shipwright apprentice Roy Groves of J. Samuel White & Co Ltd.

Earlier, the following were admitted to the freedom of the company: W. D. K. Marshall (William Denny & Brothers Ltd), Rear Admiral John H. Unwin (Furness Shipbuilding Co Ltd), and the following to the livery of the company: E. G. Grant (Stevinson Hardy & Co Ltd), R. G. D. Harrison (P. Wigham-Richardson & Co Ltd), T. S. Shearer, G. S. R. Gordon (Burls Gordon & Rogers Ltd), D. S. Clarabut (London & Rochester Trading Co Ltd), J. C. Shire (Port of London Authority).

BRITISH communications equipment is being used in the Bahrein Harbour Improvement Scheme. Following an order placed by the Crown Agents for Overseas Governments & Administrations, acting on behalf of the Port of Bahrein Authority, the Cossor Communications Co Ltd have supplied a medium power, VHF radio station. The equipment, Cossor Communications Series 121, will serve as a fixed station, providing two-way communication in the international maritime VHF band.

NEWS FROM OVERSEAS

From THE SHIPPING WORLD'S Own Correspondents

Shipyard Investment in Japan

INVESTMENTS in new equipment and expansion of facilities at Japan's 24 leading shipyards will total Yen 29,805,800,000 (about £30 mn) in the 1961 fiscal year, according to Japanese Ministry of Transportation estimates. It was pointed out that this will be nearly double the Yen 15,8000 mn of the 1960 fiscal year. Extensive expansion of facilities for the production of land machinery is being carried on by the yards, and Yen 14,976,900,000 (just over half) of the 1961 investments is earmarked for this purpose. Bank loans, bond issues, reserves and increases in capital are being used to finance the cost. Ministry figures show that there are 68 building berths on which vessels of over 6,500 grt can be built. When the present expansion work is completed, 23 of the 68 will be able to handle ships of over 45,000 dwt, and 14 of these ships of over 65,000 dwt.

In the April 1-August 31 period the Ministry approved contracts for the construction of 24 ocean-going vessels totalling 174,520 grt (263,040 dwt) for domestic owners. All are to be built outside government shipbuilding programmes. They comprised three oil tankers totalling 86,000 grt (141,800 dwt), 15 dry-cargo vessels totalling 70,520 grt (101,870 dwt), four specialised carriers totalling 14,900 grt (18,200 dwt) and two cargo-passenger vessels totalling 3,100 grt (1,170 dwt).

Export Work

SHIPS recently launched by Japanese yards for export include the 35,000-dwt coal carrier *Naess Cavalier*, which is being built at the Nagasaki yard of the Mitsubishi Shipbuilding & Engineering Co Ltd. for the Anglo-Pacific Shipping Co, of the United Kingdom, a subsidiary of the Naess Shipping Co. Due to be completed late in December, the vessel is the second of two ships of the same type ordered by the company from the same yard. The first, the *Naess Clipper*, is due to be completed in mid-October. They are equipped with 12,000-bhp Mitsubishi 9UEC 75/150-type diesel main engines, giving a service speed of 15.5 knots.

On September 29 the same yard delivered the 24,500-dwt bulk carrier *Mosdale* to the Mosvold Shipping Co, of Norway. With a length bp of 168.55m, the vessel has bridge and engine aft. The 10,660-bhp Yokohama-M.A.N. diesel main engine gave a trial speed of 17.25 knots. A sister ship, the *Moshill*, was delivered by the yard on June 28.

The 21,181-dwt *Delphic Miracle*, another bulk carrier with engine and bridge aft, was delivered to Sea Enterprises Corp, of Panama, by the Innoshima yard of the Hitachi Shipbuilding & Engineering Co Ltd. Equipped with an 8,750-bhp Hitachi-B & W 774-VTBF-160 diesel main engine, the vessel achieved a trial speed of 17.639 knots. It was the last of three similar ships built for the company by Hitachi since 1958.

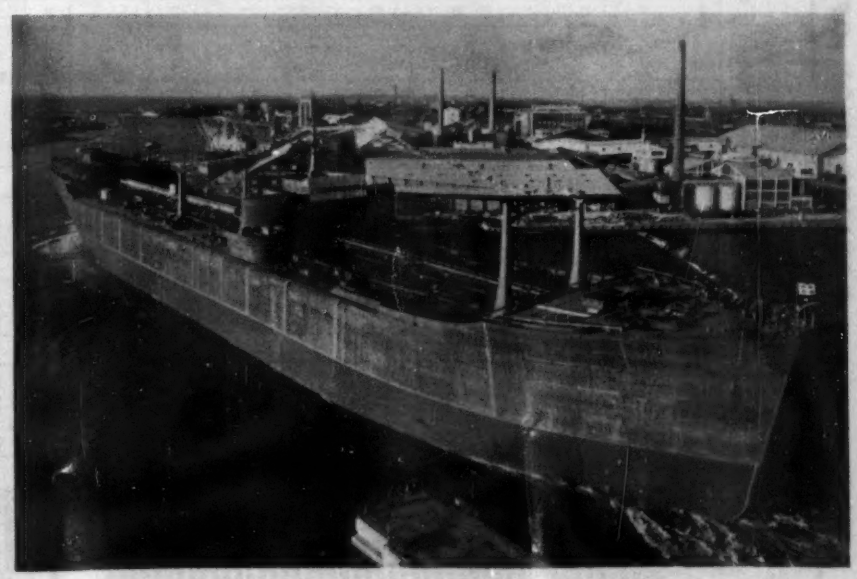
The Fujinagata Shipbuilding Co, of Osaka, launched on September 29 the first ship ever built in Japan for South Africa. Named the *R.S.A.*, the 1,550-grt vessel is also the first polar observation ship to be built for export at a Japanese yard. It was ordered by the South African government for Antarctic operations. The same builders were reported to have applied to the Ministry of Transport for approval of a contract to build three 3,900-grt L.P.G. tankers for Petroleo Brasileiro SA, of Brazil.

In Brief

ZIM ISRAEL NAVIGATION CO has now opened a new regular cargo service between the Far East and the East Coast of the United States. According to the company's spokesman, there will be monthly sailings in each direction. It is learned that with the introduction of this line, Zim's planned international cargo network has been completed.

WITH the approval of a 10-year credit of between $10 mn and $15 mn to Israel by private Dutch interests, Holland is likely to become the main supplier of vessels to the Israeli merchant marine in the next few years. This was disclosed by the Director-General of the Israel Ministry of Finance on his return from Europe.

THE KEEL was laid at Newport News, Virginia, on September 18 of the first of a class of eleven 20-knots cargo liners to be built for United States Lines. To be known as the *American Challenger*, the vessel and her 10 sisters will be modified *Mariner* class ships of 10,714 dwt.



LARGE TANKER LAUNCHED IN SWEDEN

Oresundvarvet A/B, Landskrona, have launched the 40,000-dwt tanker "Anne Mildred Brovig" for the Norwegian shipowner Th. Brovig, of Farsund. This view of the new tanker shows the rounded gunwale particularly well. The main particulars are length o.a. 700ft, length b.p. 670ft, breadth moulded 96ft, depth moulded 48ft 3in and draught on summer freeboard 35ft 9in. The oil cargo will be carried in 11 centre and 20 wing tanks with a total capacity of about 1,915,000 cu ft. The propelling machinery will consist of a 10-cylinder Gotaverken diesel engine of large bore type developing 18,350 bhp at 115 rpm

REGISTRATION OF SHIPS UNDER CONSTRUCTION (INCLUDING OIL TANKERS)

For Registration in	COUNTRY OF BUILD																																	
	Great Britain and N. Ireland		Other British Commonw'lth Countries		Belgium		Denmark		Finland		France		Germany (West)		Italy		Japan		Netherlands		Norway		Poland		Spain		Sweden		United States of America		Yugoslavia		Other Countries		TOTAL	
	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross	No.	Tons Gross
GREAT BRITAIN & NORTHERN IRELAND	195	1,247,883	1	21,000	...	...	...	...	...	...	2	60,300	7	156,968	...	...	4	124,700	15	197,551	1	11,800	...	...	1	2,100	7	188,300	...	...	...	...	...	...	233	2,010,602
AUSTRALIA	2	1,800	11	36,349	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	605	...	...	...	...	...	...	...	...	...	...	...	...	13	38,149
CANADA	2	6,430	15	74,540	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	2,940	...	...	...	...	...	...	...	...	...	...	...	...	18	81,575
INDIA	...	...	12	30,987	...	...	...	...	...	...	1	120	...	...	...	...	2	17,600	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18	71,647
OTHER BRITISH COMMONWEALTH COUNTRIES	18	32,200	13	14,043	...	...	...	...	...	...	2	9,500	4	27,000	...	...	1	9,550	4	23,566	...	...	...	...	1	7,000	...	...	2	440	...	...	45	123,299
ARGENTINA	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	22,800	...	...	...	...	6	44,700	11	24,800	21	92,300
BELGIUM	...	...	...	...	5	36,841	...	...	...	...	...	...	1	970	...	...	...	...	2	17,800	...	...	...	...	...	...	...	...	...	...	...	...	8	55,611
BRAZIL	...	...	...	...	...	...	...	...	...	...	...	...	1	130	...	...	...	...	...	...	...	...	...	...	2	19,000	...	...	2	19,000	11	44,400	16	82,530
BURMA	1	1,400	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1,400
CHILE	...	...	...	...	...	...	...	...	...	...	3	1,110	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	1,110
CHINA (NATIONALIST)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	7,600	2	19,700	...	...	...	...	...	...	...	...	...	...	...	...	2	4,800	6	32,100
DENMARK	...	...	...	...	...	...	23	169,020	...	...	...	...	9	14,202	...	...	3	51,500	12	14,707	1	390	...	...	...	...	1	3,785	...	...	...	...	49	253,604
EGYPT (U.A.R.)	...	...	...	...	...	...	...	...	...	...	...	...	5	5,500	...	...	1	650	2	2,650	...	...	...	...	...	...	...	...	...	...	6	6,220	14	15,020
FINLAND	...	...	...	...	...	...	...	...	...	...	5	1,040	...	...	...	...	...	...	...	...	8	2,045	...	...	...	...	...	...	...	...	...	...	13	3,085
FRANCE	...	...	...	...	...	...	...	...	9	22,393	...	...	2	7,800	...	...	...	...	...	...	1	1,600	...	...	...	...	1	8,700	...	...	...	...	13	40,493
GERMANY (WEST) ...	...	...	...	...	...	...	...	...	...	...	48	383,603	...	...	...	...	3	2,001	...	...	5	3,240	...	...	...	...	...	...	...	...	...	...	56	388,844
GREECE	2	20,660	...	...	2	21,660	...	...	...	...	1	15,300	107	333,904	...	...	1	200	...	...	...	...	1	499	...	...	...	...	...	...	...	...	109	334,603
INDONESIA	...	...	...	...	...	...	...	...	...	...	...	...	2	19,100	...	...	2	30,400	3	43,149	...	...	...	...	...	...	...	...	1	10,200	3	960	16	161,429
IRAQ	...	...	...	...	...	...	...	...	...	...	...	...	1	499	...	...	...	...	2	2,287	2	345	...	...	...	...	...	...	...	...	...	...	5	3,131
IRISH REPUBLIC ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	2,361	...	...	...	...	...	...	6	28,441	...	...	...	...	...	...	10	6,120	15	3,494	34	40,416
ISRAEL	...	...	...	...	...	...	...	...	...	...	...	...	2	258	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	258
ITALY	...	...	...	...	...	...	...	...	...	...	2	22,930	1	6,700	...	...	...	...	2	9,500	...	...	...	...	...	...	...	...	...	...	2	15,302	4	24,802
JAPAN	...	...	...	...	...	...	...	...	...	...	...	...	1	130	51	562,350	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	52	562,480
LIBERIA	1	12,700	...	...	2	60,200	2	59,600	...	...	...	...	...	...	141	330,924	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	141	530,924
MEXICO	...	...	...	...	...	...	...	...	...	...	...	...	1	2,000	1	11,200	6	145,952	...	...	1	11,800	...	...	3	18,330	2	77,155	...	...	2	29,800	20	426,737
MOROCCO	...	...	...	...	...	...	...	...	...	...	1	2,000	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	975	...	...	2	1,475
NETHERLANDS ...	1	42,000	...	...	...	...	...	...	...	...	4	3,580	12	85,804	...	...	...	...	73	226,773	...	...	...	...	...	...	...	...	...	...	1	500	2	1,500
NORWAY	8	122,000	...	...	...	...	1	22,000	...	...	4	37,299	15	166,233	...	...	3	47,400	2	19,000	53	328,491	...	...	...	...	2	53,205	...	...	...	...	1	2,000
PANAMA	1	30,500	...	...	...	...	...	...	...	...	1	31,000	...	...	1	17,000	...	...	4	25,996	...	...	...	...	...	...	18	203,350	...	...	...	...	92	411,362
PARAGUAY	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	22,500	...	...	...	...	...	...	104	545,773
PHILIPPINES	...	...	1	600	...	...	...	...	...	...	...	...	...	...	...	...	4	7,690	...	...	...	...	...	...	2	1,221	...	...	...	...	...	...	8	126,996
POLAND	...	...	...	...	...	...	...	...	...	...	1	5,300	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1,221
PORTUGAL	...	...	...	...	...	...	1	9,000	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20	66,012	...	...	...	...	...	...	1	1,730	1	10,040
ROUMANIA	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	28,700	...	...	25	100,012
SOUTH AFRICA ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13	30,890	14	39,890
SPAIN	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	9,100	...	...	1	9,100
SUDAN	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1,550	...	...	...	...	...	...	...	...	...	...	...	...	1	170	2	1,720
SWEDEN	2	30,160	...	...	...	...	3	15,100	3	23,900	1	4,800	...	...	...	...	...	...	3	10,880	5	8,523	...	...	104	203,652	...	...	...	...	...	...	104	283,652
SWITZERLAND	...	...	...	...	...	...	...	...	...	...	1	1,000	...	...	...	...	...	...	...	...	...	...	1	7,969	...	...	...	...	2	7,300	...	...	2	7,300
TURKEY	4	3,124	...	...	...	...	...	...	...	...	1	4,300	...	...	4	26,200	...	...	...	...	...	...	...	...	34	240,600	...	...	2	25,000	...	...	51	333,963
U.S. OF AMERICA ...	...	...	...	...	...	...	...	...	...	...	1	11,200	...	...	1	510	2	900	...	...	...	...	...	...	...	...	...	...	...	...	9	4,302	4	33,969
URUGUAY	...	...	...	...	...	...	1	115	...	...	...	...	...	...	1	17,500	...	...	...	...	...	...	...	...	...	...	56	575,387	...	...	...	...	18	37,926
YUGOSLAVIA	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	264	...	...	...	...	1	380	60	587,997
OTHER COUNTRIES ...	...	...	...	...	...	...	2	20,600	30	79,475	...	...	1	18,500	...	...	4	65,600	...	...	...	...	38	207,078	...	...	2	6,100	...	...	...	...	5	18,259
																													16	112,548	...	...	16	112,548
																																	77	397,353
Total under Construction	**237**	**1,550,857**	**53**	**197,519**	**9**	**118,701**	**79**	**280,335**	**42**	**116,968**	**76**	**594,862**	**177**	**867,118**	**58**	**608,511**	**180**	**1,097,426**	**135**	**600,505**	**72**	**364,994**	**70**	**312,740**	**120**	**274,866**	**68**	**803,695**	**39**	**576,882**	**46**	**292,468**	**76**	**137,968**	**1,508**	**8,788,335**
For Registration in Country of Build ...	**195**	**1,247,883**	**44**	**169,270**	**5**	**36,841**	**23**	**169,020**	**9**	**22,393**	**48**	**383,603**	**107**	**333,904**	**51**	**562,350**	**141**	**330,924**	**73**	**226,773**	**53**	**328,491**	**20**	**66,012**	**104**	**203,652**	**34**	**240,600**	**56**	**575,387**	**16**	**112,548**	**71**	**133,718**	**1,050**	**5,343,369**
For Registration in Other Countries ...	**42**	**302,974**	**9**	**28,249**	**4**	**81,860**	**7**	**111,315**	**33**	**94,575**	**28**	**211,259**	**70**	**533,214**	**7**	**38,161**	**39**	**566,502**	**62**	**373,732**	**19**	**36,503**	**50**	**246,728**	**16**	**71,214**	**34**	**563,095**	**3**	**1,415**	**30**	**179,920**	**5**	**4,250**	**458**	**3,444,966**

SHIPBUILDING ANALYSIS

Great Britain and Northern Ireland

Types	UNDER CONSTRUCTION: Material being Worked or on Stocks No.	Material being Worked or on Stocks Tons Gross	Fitting Out Afloat No.	Fitting Out Afloat Tons Gross	Total Under Construction No.	Total Under Construction Tons Gross	PREPARING: Plans Approved or Material ordered No.	Plans Approved or Material ordered Tons Gross	TOTAL UNDER CONSTRUCTION AND PREPARING No.	TOTAL UNDER CONSTRUCTION AND PREPARING Tons Gross	PROGRESS DURING QUARTER: Begun No.	Begun Tons Gross	Launched No.	Launched Tons Gross	Completed No.	Completed Tons Gross
Passenger	—	—	2	55,000	2	55,000	—	—	2	55,000	—	—	—	—	—	—
Passenger/Cargo	40	380,804	16	138,520	56	519,324	22	205,040	78	724,364	13	125,800	8	68,222	13	120,316
Cargo Liner	4	34,470	10	73,563	14	108,033	5	45,570	19	153,603	1	9,600	4	30,850	2	16,916
Cargo Tramp	27	544,879	11	202,041	38	746,920	12	262,710	50	1,009,630	6	64,730	5	40,486	7	105,614
Oil Tanker	1	18,500	2	27,080	3	45,580	2	34,500	5	80,080	—	—	2	27,080	2	25,421
Ore Carrier	—	—	—	—	—	—	1	2,200	1	2,200	—	—	—	—	—	—
Collier	6	6,950	4	4,730	10	11,680	10	11,230	20	22,910	3	2,159	3	3,330	2	2,223
Coaster	67	40,767	47	23,553	114	64,320	28	17,239	142	81,559	31	12,114	32	12,925	32	13,928
Miscellaneous																
Totals	145	1,026,370	92	524,487	237	1,550,857	80	578,489	317	2,129,346	54	214,403	54	182,893	58	284,418

Lloyd's Register Shipbuilding Returns

MERCHANT SHIPS UNDER CONSTRUCTION AT THE END OF SEPTEMBER 1961

STATISTICS compiled by Lloyd's Register of Shipping show that merchant ships of 100 grt and over under construction in Great Britain and Northern Ireland at the end of September totalled 237 ships of 1,550,857 grt, a decrease of 63,205 tons compared with the previous quarter and the lowest figure since September 1945; it represents a fall of 34 per cent from the highest post-war figure of 2,345,408 tons at the beginning of 1958. The total of all countries abroad, which has risen during the past quarter, shows a fall of only nine per cent from a peak figure of 7,906,658 tons in September 1958. The total comprises 92 ships of 524,487 tons fitting out afloat, and 145 of 1,026,370 tons still to be launched. During the third quarter of 1961, 54 ships of 214,403 tons were begun; 54 of 182,893 tons were launched; and 58 of 284,418 tons were completed in Great Britain and Northern Ireland. Tonnage for which plans have been approved or material ordered, but which have not been started, held fairly steady throughout last year, but the figure of 943,459 tons for December has been reduced during the three quarters of this year successively by 127,379 tons, 145,088 tons and 92,503 tons. The present figure of 578,489 tons is the lowest since September 1945. Tonnage under construction in Great Britain and Northern Ireland for registration abroad at the end of September amounted to 42 ships of 302,974 tons. The total is 7,286 tons less than last quarter and represents 19.5 per cent of the total tonnage being built. The tonnage being built abroad for registration in Great Britain and Northern Ireland has risen during the quarter from 693,471 tons to a record figure of 762,719 tons and includes 15 ships of 197,551 tons being built in the Netherlands, seven of 188,300 tons in Sweden, seven of 156,968 tons in West Germany, and four of 124,700 tons in Japan.

Oil Tankers Under Construction

Country of Build	Steam No.	Steam Tons Gross	Motor No.	Motor Tons Gross	Total No.	Total Tons Gross
Great Britain and Northern Ireland	22	626,825	16	120,095	38	746,920
Other British Commonwealth Countries	2	30,500	1	3,500	3	34,000
Argentina	—	—	1	1,500	1	1,500
Belgium	2	60,200	—	—	2	60,200
China (Nationalist)	—	—	2	4,800	2	4,800
Denmark	5	138,440	3	63,000	8	201,440
Finland	—	—	7	21,550	7	21,550
France	4	133,400	5	99,813	9	233,213
Germany (West)	9	326,409	17	11,221	26	337,630
Greece	—	—	1	150	1	150
Italy	4	114,535	6	87,449	10	201,984
Japan	7	198,282	51	255,210	58	453,492
Netherlands	5	184,500	5	54,639	10	239,139
Norway	1	18,500	16	158,478	17	176,978
Poland	—	—	10	59,098	10	59,098
Portugal	2	23,560	—	—	2	23,560
Spain	2	43,700	7	61,300	9	105,000
Sweden	11	352,760	14	193,349	25	546,109
Turkey	—	—	1	400	1	400
U.S. of America	4	156,100	—	—	4	156,100
Yugoslavia	2	40,000	4	5,500	6	45,500
World Total	82	2,447,711	167	1,201,052	249	3,648,763

Ships Begun, Launched and Completed

Country of Build	Begun No.	Begun Tons Gross	Launched No.	Launched Tons Gross	Completed No.	Completed Tons Gross
Great Britain and Northern Ireland	54	214,403	54	182,893	58	284,418
Other British Commonwealth Countries	15	29,759	10	28,673	14	37,191
Argentina	5	1,600	—	—	—	—
Belgium	2	17,200	3	13,768	6	60,175
Brazil	2	12,450	2	6,150	—	—
China (Nationalist)	—	—	2	4,800	—	—
Denmark	9	73,510	7	65,310	10	39,150
Finland	11	29,005	13	34,834	5	15,998
France	11	59,683	13	143,788	11	54,271
Germany (West)	55	222,310	62	242,979	64	218,867
Greece	—	—	1	150	1	16,278
Hungary	3	1,650	4	4,075	1	1,300
Indonesia	3	852	3	852	3	1,018
Irish Republic	—	—	—	—	1	502
Israel	—	—	—	—	1	200
Italy	16	115,598	8	96,081	14	97,498
Japan	162	470,462	172	482,922	151	398,218
Netherlands	43	98,860	39	171,426	33	132,785
Norway	17	44,417	12	62,419	21	96,541
Poland	16	72,533	15	56,484	10	26,184
Portugal	2	800	—	—	1	1,661
Spain	22	17,631	26	36,388	25	12,548
Sweden	15	140,429	17	176,043	17	167,529
Turkey	2	1,040	1	400	5	2,495
U.S. of America	14	72,228	14	119,466	15	83,497
Yugoslavia	8	63,650	5	45,750	3	18,486
World Totals	487	1,760,070	483	1,975,651	470	1,766,810

Tonnage Building Abroad

Ships under construction at the end of September totalled 1,271 of 7,237,478 grt; an increase of 53,057 tons since the previous quarter. As was then the case, no returns are available for China, East Germany and Russia. After falling steadily from a peak figure of 7,906,658 tons in September 1958, to 6,972,894 tons at the end of 1960, there has been an increase of 264,584 tons in tonnage under construction abroad during the first three quarters of this year. Totals for the leading countries abroad, as compared with the previous quarter are:

Japan	1,097,426 (+73,515)	Yugoslavia	292,468 (+44,864)
Germany (W)	867,118 (+ 2,856)	Denmark	280,335 (+33,530)
Sweden	803,695 (−28,436)	Spain	274,866 (+ 5,091)
Italy	600,511 (+31,257)	Belgium	118,701 (−44,732)
Netherlands	600,505 (−54,057)	Finland	116,968 (+12,569)
France	594,862 (+ 3,003)	Canada	77,740 (−14,670)
U.S.A.	576,802 (−14,732)	Australia	56,730 (+ 9,655)
Norway	364,994 (−48,780)	India	50,987 (− 5,950)
Poland	312,740 (+50,414)		

Tonnage intended for registration elsewhere than in the country of build shows an increase of 30,639 tons to a present figure of 3,141,992 tons (43.4 per cent of the total under construction abroad), including 762,719 tons for Great Britain and Northern Ireland, 495,282 tons for Norway, and 414,037 tons for Liberia.

Merchant Ships Under Construction in the World

(Excluding ships of less than 100 tons gross)

Country of Build	Steamships No.	Steamships Tons Gross	Motorships No.	Motorships Tons Gross	Total No.	Total Tons Gross	Percentage of World Tonnage
British Commonwealth:							
Great Britain and N. Ireland	30	691,079	207	859,778	237	1,550,857	17.65
Australia	1	21,000	9	35,730	10	56,730	
Canada:							
Coast	3	43,000	10	23,110	16	77,740	
Great Lakes	—	—	3	11,630			
India	4	1,462	8	49,525	12	50,987	2.25
Other Commonwealth Countries	—	—	15	12,062	15	12,062	
Argentina	1	200	10	24,600	11	24,800	0.28
Belgium	2	60,200	7	58,501	9	118,701	1.35
Brazil	2	15,000	9	29,400	11	44,400	0.51
China (Nationalist)	—	—	2	4,800	2	4,800	0.05
Denmark	6	147,440	24	132,895	30	280,335	3.19
Egypt (U.A.R.)	—	—	1	1,970	1	1,970	0.02
Finland	—	—	42	116,968	42	116,968	1.33
France	7	213,700	69	381,162	76	594,862	6.77
Germany (West)	13	377,647	164	489,471	177	867,118	9.87
Greece	—	—	3	960	3	960	0.01
Hungary	—	—	5	4,250	5	4,250	0.05
Indonesia	—	—	15	3,494	15	3,494	0.04
Irish Republic	—	—	2	15,302	2	15,302	0.18
Israel	—	—	—	—	—	—	—
Italy	8	247,535	50	352,976	58	600,511	6.83
Japan	10	286,152	170	811,274	180	1,097,426	12.49
Mexico	—	—	1	500	1	500	0.00
Netherlands	5	184,500	130	416,005	135	600,505	6.83
Norway	1	18,500	71	346,494	72	364,994	4.15
Phillippines	—	—	1	1,750	1	1,750	0.02
Poland	2	23,080	68	289,660	70	312,740	3.56
Portugal	2	23,560	10	7,030	13	30,890	0.35
Angola	—	—	1	300			
South Africa	—	—	1	170	1	170	0.00
Spain	12	59,967	108	214,899	120	274,866	3.13
Sweden	12	356,760	56	446,935	68	803,695	9.15
Turkey	1	890	8	3,412	9	4,302	0.05
U.S. of America:							
Atlantic Coast	24	378,166	6	3,285			
Gulf Ports	6	69,600	6	2,090	59	576,802	6.56
Pacific Coast	10	118,000	1	100			
Great Lakes	—	—	6	5,561			
Uruguay	—	—	1	380	1	380	0.00
Yugoslavia	2	40,000	44	252,468	46	292,468	3.33
World Total*	164	3,377,436	1,344	5,410,897	1,508	8,788,335	100.00

*Returns are not available for China, East Germany and Russia

NEW CONTRACTS

Shipowners	No. of Ships	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Delivery	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
S. G. Andreadis	1	Bulk carrier	28,000	—	—	—	Sulzer diesel	—	Shipbuilders	Scotts' S.B. & E. Co
Reardon Smith Line	2	Cargo	15,000	—	—	—	Diesel	—	Shipbuilders	Wm. Doxford & Sons
London County Council	3	Ferries	—	184	—	—	Diesel	—	—	Caledon S.B. & E. Co
London owners	1	Tug	—	74	—	—	Diesel	528	Lister Blackstone	James W. Cook & Co
Swedish owners	1	Tug	—	—	1962	—	Diesel	—	Ruston & Hornsby	Cook Welton & Gemmell
Southampton Borough Council	1	Floating bridge	—	(165) × 38 × 47 (2.9)	—	—	Diesel hydraulic	—	—	John I. Thornycroft & Co
Overseas Yards										
Reederei Egon Oldendorff	3 (628/30)	Cargo	4,250	—	1962	14	Two diesels	3,000	M.A.N.	Werft Nobiskrug
A/S Mosvold Shipping Co	1	Tanker	54,000	—	1064	—	Geared turbine	—	—	Verolme United Shipyards
Halfdan Grieg & Co A/S, Bergen	1	Bulk carrier	28,000	—	1963	—	—	—	—	Haugesund M.V.
Sig. Bergesen d.y. & Co	1	Tanker	100,000	—	1965	—	Diesel	—	Burmeister & Wain	Rosenberg M.V.

LAUNCHES

Date	Shipowners	Ship's Name and/or Yard No.	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Oct. —	Stirling Fishing	*Tom Grant* (267)	Trawler	(250)	127	—	Diesel	780	Mirrlees Bickerton & Day	Brooke Marine
Oct. 9	Abu Dhabi Marine Areas	*Adma Constructor* (1925)	Work barge	(2,300)	—	—	NIL	—	—	Swan Hunter, Wallsend
Oct. 10	Rea Towing Co	*Cedargarth* (138)	Tug	(230)	—	—	Diesel	—	Ruston & Hornsby	P. K. Harris & Sons
Oct. 10	Westminster Plant Co	*Cosray 27* (431/2)	Barge	(238)	—	—	Diesel	—	—	Ardrossan Dockyard
Oct. 11	Deevale Trawling Co	*Deeside*	Trawler	(49)	(74) × 19.5 × 10.5	—	4-cyl diesel	264	Lister Blackstone	John Lewis & Sons, Montrose
Oct. 12	Centomor, Poland	— (510)	Floating dock	5,500 (lift. cap.)	—	—	NIL	—	—	Furness S.B. Co
Oct. 12	Richard Irvin & Sons	*Ben Heilem* (319)	Trawler	(370)	135 × 26.5 × 13.25	—	7-cyl diesel	854	Mirrlees Bickerton & Day	John Lewis & Sons
Overseas Yards										
Oct. 5	Chowgule Steamships (Bahamas) Ltd (Harley Mullion & Co)	*Maratha Endeavour* (945)	Cargo	15,000 (11,000)	493(520) × 70.5 × 39.5(28.95)	14	7-cyl M.A.N. diesel	6,130	Shipbuilders	Howaldtswerke
Oct. 6	Rederi A/B Transatlantic	*Alabama* (1072)	Cargo	9,000 (8,700)	450 × 63 × 39.5(28)	14.5	G.V. diesel	8,100	Shipbuilders	Lindholmens Varv
Oct. 6	Kon. Nederlandsche Stoom Mij.	*Hermes* (753)	Cargo	7,100 (5,710)	385 × 57.5 × 31.25 (24.42)	16.25	Diesel	4,900	Gebr Stork	A. Vuyk & Zonen
Oct. 7	Paal Wilson & Co A/S	*Lindo* (121)	Cargo	4,000 (2,746)	—	—	Diesel	—	M.A.N.	Paul Lindenau
Oct. 7	Sven Salen	*Ballade* (211)	Refrig. cargo	(6,750)	420 × 59.5 × 36(25)	—	Geared turbine	—	de Laval	*Ch. Navals de la Ciotat
Oct. 7	Sig. Bergesen d.y. & Co	*Berge Edda* (177)	Tanker	51,000 (31,000)	710 × 104 × 51.5 (38.5)	15.5	Diesel	17,300	Burmeister & Wain	Rosenberg M.V.
Oct. 7	Soc. Transoceanica Canopus	*Centaurus* (376)	Cargo	12,200 (10,494)	480 × 64 × 41.9(27.5)	16	Diesel	7,000	Gebr. Stork	J. & K. Smit
Oct. 10	Chinese Maritime Trust	*Ru Yung* (798)	Pass. cargo	12,500 (10,000)	482.2(518.33) × 66.25 × 41(29.67)	18	8 cyl Sulzer diesel	10,200	Shipbuilders	Uraga Dock
Oct. 10	Soc. Generale pour la Navigation Maritime	*Syria* (786)	Pass.	(4,000)	—	—	Diesel	—	M.A.N.	Deutsche Werft
Oct. 12	Th. Brovig. Farsund	*Anne Mildred Brovig* (173)	Tanker	40,000	670(700) × 96 × 48.25 (35.75)	—	10-cyl diesel	18,350	Gotaverken	Oresundsvarvet
Oct. 12	P. Heering	*Heering Rose* (358)	Cargo	6,000	354.33 × 52.2 × 29.33 (23)	15	6-cyl B & W diesel	4,200	Shipbuilders	Elsinore S.B. Co
Oct. 14	U.S.S.R.	*Bucharest*	Tanker	30,500 (21,255)	659 × 84 × 44.5(34.58)	18	Geared turbine	19,000	—	Baltic Shipyard "Serge Ordjonikidze"
Oct. 15	Soc. di Nav. Polinnia Palermo	*Polinnia* (220)	Bulk carrier	23,400 (16,200)	582.33(630) × 79.25 × 46.58	—	9-cyl diesel	12,600	Fiat	Cant. Nav. Breda

* Built under sub-contract from Ekensbergs Varv, Sweden

TRIAL TRIPS

Date	Shipowners	Ship's Name and/or Yard No.	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Sept. 27	Wilronwood Fishing Co	*Wilronwood* (285)	Trawler	(170)	(108.75) × 22.25 × 11.25	—	5-cyl diesel	500	A.K.	Brooke Marine
Oct. —	Stephenson Clarke & Co	*Gilsland*	Cargo	10,200 (5,150)	420(450) × 56.5 × 36.5 (27.67)	—	4 cyl diesel	6,640	Wm. Doxford & Sons	Burntisland S.B. Co
Oct. —	J. H. Loudon	*Ivara* (2542)	Yacht	(200)	105 × 20 × 6	13	Two diesels	660	Rolls-Royce	Vosper
Oct. —	W. Flack, Esq	*Isambard Brunel* (289)	Yacht	(80)	(75) × 17.25 × 11(6.2)	11.5	Two 6 cyl diesels	460	—	Brooke Marine
Oct. 10	MacAndrews & Co	*Pacheco* (529)	Cargo	(1,250)	228 × 42 × 14.25	14.75 (T)	Diesel	2,000	National Gas	Grangemouth Dockyard
Oct. 20	Port Line	*Port St Lawrence* (1631)	Refrig cargo	10,000 (9,600)	470(500) × 67.67 × (28.25)	17	7-cyl B & W diesel	10,000	Shipbuilders	Harland & Wolff, Belfast
Overseas Yards										
Sept. 1	Bernina S.A. d' Armament Maritime (Suisse Outremer S.A. de Gerance and Affretement Maritimes)	*Rhin* (154023)	Cargo	10,300 (6,630)	464.5(504.95) × 63.5 × 41.2(27.33)	16.25	6-cyl. diesel diesel	7,800	Sulzer Bros.	Stocznia Gdanska
Sept. 28	Mobil Tankships, Hamilton, Bermuda	*Mobil Endeavour* (559)	Tanker	50,700 (30,000)	703(735.42) × 104 × 31.5(38.58)	16.5	Geared turbine	18,000	de Laval	Eriksbergs
Sept. 29	Mosvold Shipping Co.	*Mosdale* (1534)	Bulk carrier	24,500 (15,800)	551.2 × 75 × 46(31)	17.25	M.A.N. diesel	10,650	Shipbuilders	Mitsubishi S.B. & E. Co., Nagasaki
Sept. 29	Kon. Nederlandsche Stoom. Mij.	*Palamedes* (806	Cargo	7,100 (5,700)	385(424) × 57.5 × 31.25	16.25	Diesel	4,900	Gebr. Stork	C. Van der Giessen & Zonen
Sept. 30	Olympus Shipping & Trading Co.	*Olympus* (834)	Tanker	73,000 (41,000)	784.1 × 113.5 × 61.5 (45.58)	16.3	12-cyl. M.A.N. diesel	22,000	Shipbuilders	Mitsubishi Nippon H.I.

MARITIME NEWS IN BRIEF

Mr B. Baxter, at present the chief representative of Bureau Veritas in the United Kingdom, is to join Yarrow & Co Ltd in January 1962, and will be appointed principal naval architect and shipbuilding director in July 1962, on the retirement of Mr A. R. Mitchell at that time.

Mr M. G. Ackerley has been appointed chairman of Benjn. Ackerley & Son Ltd, succeeding his father, the late Mr Graham Ackerley.

Mr W. A. Train and Mr F. J. Goodall have been appointed to the board of W. H. Allen Sons & Co Ltd, Bedford. Mr Train has been the works manager at Bedford since April 1954, while Mr Goodall has been the company's chief accountant since March 1958.

Mr J. Abell and Mr H. B. Cowley have been appointed directors of Thos. & Jno. Brocklebank Ltd. They will continue to hold their respective offices of chief accountant and deputy general manager.

Mr F. C. Pyman is to retire as a director of Dene Shipping Co Ltd and its subsidiary, Silver Line Ltd, on December 31.

Mr T. S. J. Anderson, who has been Director of Studies at the Royal Military Academy, Sandhurst, since July 1948, will join the staff of Vickers Ltd on January 1 in the newly created appointment of controller of education and training.

Mr E. J. Hunter, chairman of Swan Hunter & Wigham Richardson Ltd, Wallsend, has resigned from the Tyne Improvement Commission, Newcastle upon Tyne, owing to pressure of business.

Mr J. L. Leob has been appointed a director of the Anglo American Shipping Co Ltd.

Mr D. D. McGuffie has been elected a director of Alex. Stephen & Sons Ltd. Mr McGuffie has been with the company over 20 years and was recently appointed repair manager in succession to the late Mr W. B. Johnstone.

Mr E. G. Barber has been appointed group education officer for the British Aircraft Corporation Ltd.

Mr A. B. Bedford has been appointed assistant secretary of the Dry Dock Owners' & Repairers' Council.

Rear-Admiral J. Y. Thompson has joined Elliott Brothers (London) Ltd. He will assume special responsibilities in connection with the company's work for the Royal Navy.

MR G. EDNEY has been appointed to succeed Mr F. D. Arney as general manager of the Port of Bristol Authority. From 1949 to 1953 Mr Edney was deputy chief accountant to the South Western Gas Board. From their he joined the Port of London Authority as deputy chief accountant and was appointed chief accountant in 1955. Mr Arney has been with the Authority since 1914 and has been general manager since 1945

Mr J. Davidson, superintendent engineer, has been appointed a director of the Bank Line Ltd.

Mr Paul MacMurray has been elected executive director of the Delaware Port Authority, succeeding the late Mr J. M. McCullough. The Authority has also appointed Mr W. R. Dowdy as assistant director of administration operations and defence coordinator.

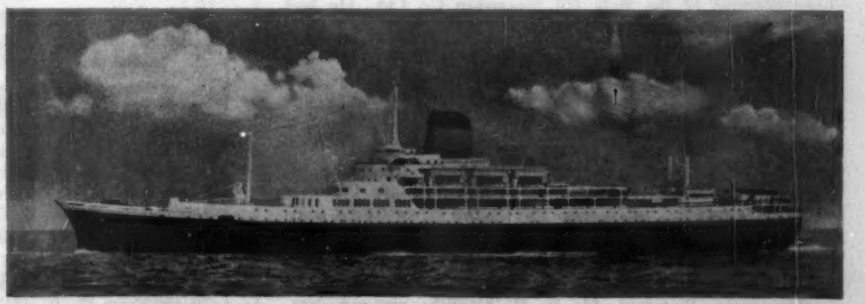
* * * *

During the third quarter of 1961, British shipbuilding firms secured orders for 49 merchant ships of 160,000 grt which brought the orders for the year to September 30 to 152 ships of 502,000 grt. Comparable figures for 1960 are 38 merchant ships of 63,000 tons, and 176 ships of 417,000 tons, respectively. At the end of September 1961, the industry's total order book stood at 379 ships of 2,791,000 tons gross. Just over 16 per cent of the total—36 ships of 455,000 tons gross—is for foreign ownership.

Mr Cooke Bausman, Jr, has been appointed manager of marketing, Petrochemicals Department of the Gulf Oil Cor-

BASSETT LOWKE MODEL OF THE "TRANSVAAL CASTLE"

Bassett Lowke Ltd, the well-known model-making firm, have recently completed a 16-ft model of the liner "Transvaal Castle" for the Union-Castle Line. It has been built to a scale of ¼ in: 1 ft and weighs 3 cwt. The port side has translucent panels to reveal life on board as passengers prepare for dinner. For this model there have been accurately reproduced over 560 chairs, 220 tables, innumerable types of miniature standard lamps, hand-painted carpets and fabrics and over 200 human figures. There are 1,200 handrail stanchions and for railings 500 ft of fine wire was used. Some 400 portholes have been cut in the hull and each one is illuminated. Large numbers of replaceable bulbs have been employed for interior lighting. The model is shown above in a sea setting. For purposes of comparison an illustration of the "Windsor Castle" is shown below. While the profiles are very similar, small differences stand out. The principal ones are the deckhouse under the funnel of the new vessel; the taller signal mast; different siting and style of the mast forward which carries the navigation lights; repositioning of the forward crane; difference in the windows on the bridge fronts; re-siting of the after derrick posts; more open promenade decks; and, of course the heavily curved bow of the "Transvaal Castle". The new ship also has a bulbous forefoot and is the first Union-Castle liner to be so fitted



MR J. O. GRIEVE (left) has been appointed a director of Ben Line Steamers Ltd. He has been secretary of the company for the past 20 years. Mr Grieve joined Wm. Thomson & Company, Edinburgh, who are managers of the Ben Line, in 1926 and became a partner in 1943. MR N. D. G. GALBRAITH (right) has succeeded Mr Grieve as secretary of the Ben Line. He has been with Wm. Thomson & Company since 1946

poration. Mr Bausman in this newly created position will direct Gulf's programme for marketing of petrochemicals in the United States and abroad.

MESSRS L. COLKETT, K. C. McCarthy and G. H. Thornley have been appointed directors of Castrol Ltd, parent company of the Castrol Group.

SIR HAROLD SNOW will be retiring as a deputy chairman and a managing director of the British Petroleum Co Ltd at the end of the year, but will remain on the board.

COMMANDER A. E. HARBORD, who retired from the Mersey Docks & Harbour Board in 1948 as marine surveyor and water bailiff, has died at the age of 77. He joined the Board in 1922.

MR G. W. TODD, who has spent the whole of his career in the Mercantile Marine Office of the Ministry of Transport, has retired as superintendent at Tilbury.

MR ARTHUR EGLEN, a former commodore purser with the Pacific Steam Navigation Company, has died at the age of 87.

THE death has occurred of Mr W. R. Wilson, former marine superintendent of the Bulk Oil Steamship Co Ltd. He had retired from business four years ago.

THE death has occurred of Mr R. Rutherford, governing director of A. Rutherford & Co Ltd, shiprepairers of Birkenhead. He had been with the firm, founded by his father more than a century ago, for 62 years.

* * * *

WILLIAM DENNY & BROTHERS LTD, Dumbarton, have set up a subsidiary company to build hovercraft. The new company has taken over part of the firm's Leven shipyard. The subsidiary is called Denny Hovercraft Ltd.

THE governing council of the British Engineers' Association has announced the following elections of office-bearers for the ensuing year: President, Mr E. N. Griffith; vice-president, Mr K. M. Leach; and honorary treasurer, Mr A. I. Baker.

THE FRENCH LINE and the United States Lines have agreed that next year their two large liners *France* and *United States* will sail from New York to Europe on alternate weeks.

THE PERKINS GROUP OF COMPANIES, of Peterborough, are to establish an international public relations organisation.

THE TRANSPORT FERRY SERVICE has appointed three new agents in Western Germany to assist in handling the increasing freight trade between Great Britain and Northern Europe. They are Fisser & v. Doornum, of Hamburg; Hans-Joachim Leue, of Frankfurt am Main; and Hugo Stinnes, of Munich.

THE *Rothesay* class anti-submarine frigate, HMS *Lowestoft*, has been commissioned for service at the Linthouse, Glasgow, shipyard of Alexander Stephen & Sons Ltd.

HMS *Euryalus*, the sixth of the *Leander* class frigates, has been laid down at the Greenock shipyard of Scotts' Shipbuilding & Engineering Co Ltd.

IN 1962, the *Royal Daffodil* of Eagle Steamers will make a day call at Calais every Monday in addition to the normal "No-Passport" day trips on Saturday and Sunday from Gravesend and Southend. The firm has applied to the Home Office for permission to allow passengers to go to France for three days without a passport, giving them a chance to visit Paris.

THE INCRES LINE has sold the cruise ship *Nassau* to a new Mexican company for cruise service between Los Angeles and Acapulco, Mexico. The transaction involved a price of $2,750,000 for the 38-year-old passenger ship. The new owners, the Compania Naviera Turistica Mexicana (Mexican Tourist Shipping Company), will take possession of the *Nassau* in Glasgow later this month. She will be renamed *Acapulco*.

THE SOCIETY OF MARINE ARTISTS is holding its sixteenth annual exhibition at the Guildhall, London EC2 from October 18 to November 8.

THE East Pakistan Inland Water Transport Authority have placed orders for eight new survey launches. The vessels, which are to be built by the S.R. Mitrovica Shipyard, Yugoslavia, will be powered by Rolls-Royce six-cylinder turbocharged marine diesels.

THE BOILERMAKERS' SOCIETY has made a further relaxation in their two-years-old ban on the entry of apprentices into the boilermaking trades in Sunderland shipyards. Owing to the better employment position, the Society has agreed to allow firms to replace youths who have completed their apprenticeships. In other trades, employers are now able to recruit youths where shortages exist.

THE SEAFARERS' EDUCATION SERVICE is organising a new essay competition for all British seafarers or ex-seafarers, with a closing date on 31 March 1962. The first prize will be £50, and there will be two other prizes of £20 and £10. The subject will be "My most exciting experiene", and entries should be between 2,000 and 3,000 words. The prize money is being effered by *The Reader's Digest* which may purchase the best entries as well.

THE Chamber of Shipping index number of tramp shipping freights for September is 110.6 (1960 = 100). The index number of tramp timecharter rates is 118.3.

STATISTICS compiled by the Chamber of Shipping show that 287 ships of 2,388,599 tons were laid up for lack of employment throughout the world at the beginning of October. Of this total 111 ships of 566,295 tons were dry cargo and 176 of 1,822,304 tons were tankers. British-flag vessels totalled 37 of 302,892 tons, of which 11 of 81,597 tons were dry cargo and 26 of 221,295 tons were tankers.

FIFTY YEARS AGO

From THE SHIPPING WORLD of 25 October 1911

The second "Monitor" vessel, the *Hyltonia*, ran trials from the Tyne, on Thursday. Built by Messrs. Osbourne, Graham & Co., Sunderland, for the Ericsson Shipping Company, of Newcastle, and fitted with triple-expansion engines by the North-Eastern Engineering Company, she is practically a duplicate of the *Monitoria*, which has already vindicated the claims of the constructors and her designer, Mr. A. H. Haver. The *Hyltonia*, though a duplicate of the *Monitoria*, is considerably improved in details, and, as a matter of fact, is a better carrier. On a net register of 1,145 tons, she went to sea on Thursday with 3,395 tons of coal and bunkers on board, drawing 18 ft. This is practically three times her net register, and compares with 3,200 tons carried by sister ships of the ordinary type.

The White Star Line have decided to place in the company's Mediterranean service this winter, in addition to the *Cedric*, the palatial steamer *Adriatic*, which will leave New York on December 2 for Mediterranean ports. On her second and third voyages on January 10 and February 21, the *Adriatic* will proceed as far as Alexandria. The *Cedric's* sailings from New York will be on January 24 and March 6, and the other vessels constituting the White Star Line's Mediterranean service are the twin-screw steamers *Cretic*, *Canopic* and *Romanic*.

S.S. CAESAREA

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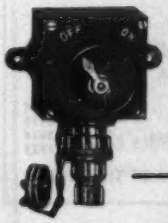

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MR J. O. GRIEVE (left) has been appoint... Steamers Ltd. He has been secretary of ... Mr Grieve joined Wm. Thomson ... managers of the Ben Line, in 192... MR N. D. G. GALBRAITH (right) has ... of the Ben Line. He has been with Wm...

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MESSRS L. COLKETT, K. C. Mc... have been appointed directors o... pany of the Castrol Group.

SIR HAROLD SNOW will be retiri... a managing director of the Britis... end of the year, but will remain ...

COMMANDER A. E. HARBORD, w... Docks & Harbour Board in 19... water bailiff, has died at the age ... in 1922.

MR G. W. TODD, who has spen... the Mercantile Marine Office of ... has retired as superintendent at T...

MR ARTHUR EGLEN, a former ... Pacific Steam Navigation Company ...

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THE death has occurred of M... director of A. Rutherford & Co L... head. He had been with the firm, ... than a century ago, for 62 years.

* * *

WILLIAM DENNY & BROTHERS ... up a subsidiary company to ... company has taken over pa... yard. The subsidiary is called Den...

THE governing council of the Br... has announced the following electio... ensuing year: President, Mr E. ... Mr K. M. Leach; and honorary tr...

THE FRENCH LINE and the Unite... that next year their two large liner... will sail from New York to Europe ...

THE PERKINS GROUP OF COMPA... to establish an international public...

THE TRANSPORT FERRY SERVICE ... agents in Western Germany to assist ... ing freight trade between Great Britain and Northern Europe. They are Fisser & v. Doornum, of Hamburg; Hans-Joachim Leue, of Frankfurt am Main; and Hugo Stinnes, of Munich.

THE *Rothesay* class anti-submarine frigate, HMS *Lowestoft*, has been commissioned for service at the Linthouse, Glasgow, shipyard of Alexander Stephen & Sons Ltd.

HMS *Euryalus*, the sixth of the *Leander* class frigates, has been laid down at the Greenock shipyard of Scotts' Shipbuilding & Engineering Co Ltd.

IN 1962, the *Royal Daffodil* of Eagle Steamers will make a day call at Calais every Monday in addition to the normal "No-Passport" day trips on Saturday and Sunday from Gravesend and Southend. The firm has applied to the Home Office for permission to allow passengers to go to France for three days without a passport, giving them a chance to visit Paris.

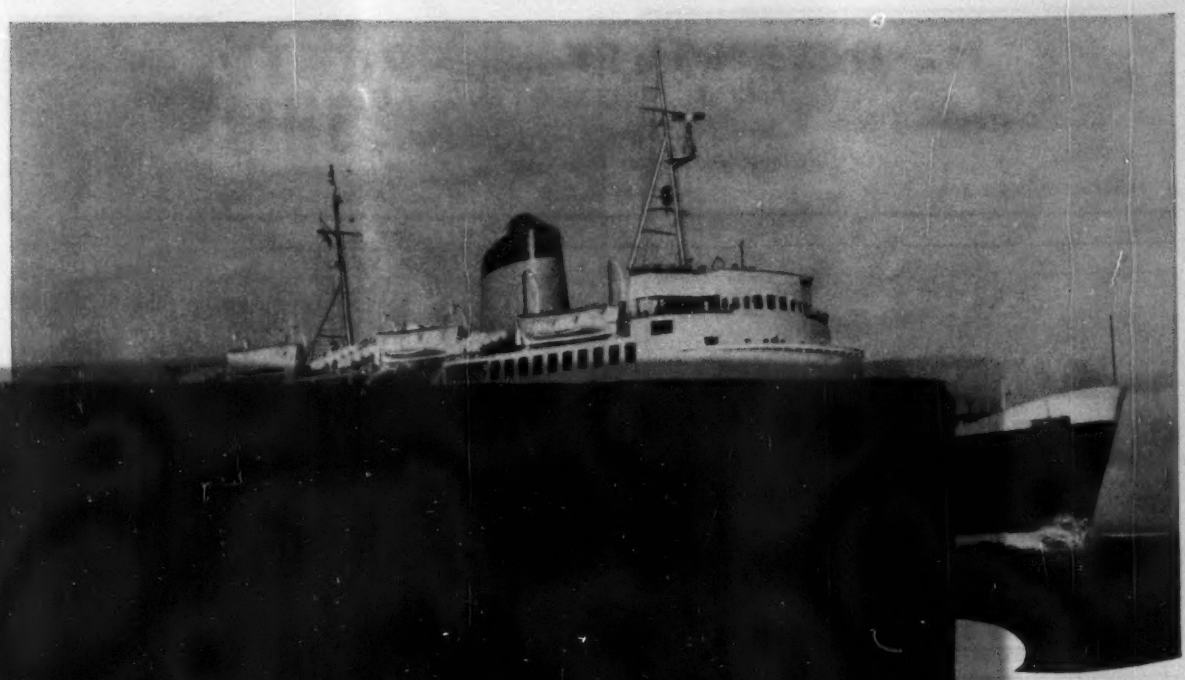
THE INCRES LINE has sold the cruise ship *Nassau* to a new Mexican company for cruise service between Los Angeles and Acapulco, Mexico. The transaction involved a price of $2,750,000 for the 38-year-old passenger ship. The new owners, the Compania Naviera Turistica Mexicana (Mexican Tourist Shipping Company), will take possession of the *Nassau* in Glasgow later this month. She will be renamed *Acapulco*.

THE SOCIETY OF MARINE ARTISTS is holding its sixteenth annual exhibition at the Guildhall, London EC2 from October 18 to November 8.

THE East Pakistan Inland Water Transport Authority have

WAVY

tion to the *Cedric*, the palatial steamer *Adriatic*, which will leave New York on December 2 for Mediterranean ports. On her second and third voyages on January 10 and February 21, the *Adriatic* will proceed as far as Alexandria. The *Cedric's* sailings from New York will be on January 24 and March 6, and the other vessels constituting the White Star Line's Mediterranean service are the twin-screw steamers *Cretic*, *Canopic* and *Romanic*.



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SHIP STORES AND CATERING

Cooking with Butter

ITS NATURE AND RECOMMENDED USES

BUTTER is really solid cream and it takes the cream of 18 pints of milk to make every pound. This makes it extremely good value for money and a highly concentrated source of nourishment.

Butter was probably discovered by accident. Many thousands of years ago it is thought that herdsmen, travelling far in search of their cattle, carried milk in leather bottles; after a while, the constant jogging of their camels shook up the milk and turned it into butter. It was not long before the herdsmen began making the butter deliberately by putting milk into earthenware jars and beating it by hand. Nowadays, of course, butter is churned only from cream and it is made in large mechanically operated churns in spotlessly clean dairies. Every care is taken to see that butter reaches the customer in first-class condition.

Butter was not sold in packets until quite recently. Until 50 years ago, in parts of Essex and Cambridgeshire, it was carried to market in yard-long, flat baskets and sold by length. To make sure there was no cheating the Proctors of Cambridge University had a special iron butter measure. In fact, it is still carried on ceremonial occasions.

Country people made their purchases at the butter markets, which still exist in some country towns. The farmer, or his wife, would stand with their baskets, the butter neatly covered with a cloth. For the city dweller, there were the famous town dairies, with a shop attached for customers. Today, such dairies no longer exist because modern transport and refrigeration have made them unnecessary.

Butter today can be brought to the town customer in first-class condition, not only from the surrounding countryside, but from the other side of the world. Most butter in the United Kingdom, for instance, comes from New Zealand, Denmark, Australia, Holland, Finland, Eire, Sweden and Norway. United Kingdom production of butter varies in amount but is usually about 6 or 7 per cent of total consumption.

Ripened Cream and Sweet Cream Butters

There are two main types of butter sold in Britain The European countries for the most part send what is called a "ripened cream" butter, which means that it has been made from a partially soured cream and tastes rather like farmhouse butter. The cream is deliberately left in vats to ripen before churning in order to give the butter its characteristic flavour and aroma. Most of the European butter imported is slightly salted because that is the way most British people like it. The Dutch, however, send their butter unsalted and a small amount of other European butter, Danish especially, is sold unsalted.

New Zealand and Australia, on the other hand, who provide nearly 40 per cent of our butter, send for the most part "sweet cream" butter, made exclusively from fresh cream. It has excellent keeping qualities and is generally milder in flavour than ripened cream butter. Most of it is slightly salted.

Butter is a natural product, not a standardised article. Thus it is not only the taste that varies in butter: the colour and texture also differ. Much depends on the breed of cow and how much grass she gets to eat. Butter from Europe is usually rather pale in colour with a soft, fine texture, while New Zealand and Australian butter, most of which is made from cream supplied by Jersey cows, tends to be a golden yellow and firmer in texture.

British butter is usually made from sweet cream, although a small quantity of ripened cream butter is made. It comes from a variety of different breeds. In consequence, the colour and texture are not always the same. Cornish butter, for instance, made from the cream of Jersey cows, is a bright yellow, while Scottish butter, mostly from the cream of Ayrshires, partly stall-fed, is very pale and soft.

To make the most of butter it should be used liberally in cooking as well as a spread. It is, indeed, the secret of good cooking—the basis of French *haute cuisine*—because it blends naturally with other ingredients, and never loses its buttery flavour and aroma. This is important from a nutritional point of view because, on a restricted diet, as in a hospital, butter can make the food that much more palatable for the patients.

Where Butter is a "Must"

Most people make sure they use butter in Christmas cakes, and all cakes made with butter keep moist longer, have a better flavour and lighter texture. It is advisable to use one of the softer butters, such as Danish or Dutch, because they are easier to cream. Cakes which are made to keep and mature, such as Christmas and wedding cakes, must be made with butter.

For pastry making butter helps enormously—the usual proportions are half butter and half lard to twice their combined weight in flour. Here, a firm butter such as New Zealand or Australian is more appropriate. Quick to rub in, its special texture makes it easy to handle when rolling out and it is neither too greasy nor too brittle for puff pastry. Anyone who has made shortbread will know that butter is essential for this, too. Substitutes tend to produce too wet a dough, and the taste of butter in good shortbread makes all the difference.

As for sauces, just plain melted butter is one of the best sauces of all. More elaborate ones, such as Hollandaise sauce, must, of course, be made with butter. For omelettes and fish dishes butter is again essential. As

Brillat-Savarin, the 18th-century gastronome, said: "Cooking is art and butter." The chefs of today would agree with him.

Here are some recipes compiled recently by Mrs. Margaret Alcorn, cooking demonstrator for the Butter Information Council:

Magdalena Pudding

2 oz butter
2 oz caster sugar
2 eggs
2 oz plain flour
¼ pint milk
Rind of one orange and rind of one lemon
2-3 tablespoons marmalade or jam
Juice of one orange

Method

1. Cream butter and sugar together.
2. Add beaten eggs one by one with a little flour to prevent curdling.
3. Add fruit rinds.
4. Add the rest of the flour.
5. Gradually add the milk.
6. Pour into buttered dish so that the mixture is about 1½ to 2in deep.
7. Bake in moderately hot oven (375 deg F: gas 5) for 30-40 minutes.
8. Serve with gently heated marmalade or jam, and the juice of the orange.

Buttered Apple Meringue

1 lb baking apples
Sugar to taste—granulated or soft brown
1 oz butter
2 trifle sponges
2 eggs
1 teaspoon caster sugar
¼ cup of milk
2 oz caster sugar

Method

1. Melt butter in a pan—add just enough water to cover bottom of pan.
2. Add peeled apples cut into small pieces, with sugar to taste. Cook until tender. Beat with a fork. Put into buttered dish.
3. Cut trifle sponges in two lengthways and lay on top of apple.
4. Separate eggs. Beat yolks, add milk and one teaspoonful sugar. Pour over sponge cakes. Put in moderately hot oven to set—about 10 to 15 minutes. Turn down oven a little.
5. Beat egg whites until stiff. Add 2 oz caster sugar and beat again. Pile on top of apple and sponge custard. Put into oven and leave until set and golden brown.
6. Decorate with glacé cherries.

CUNARD PURCHASING CHIEF VISITS ROSS GROUP

Chief Purchasing Superintendent of the Cunard Steam-Ship Co Ltd, Mr N. Ogilvie (second from left) has a point explained to him by shipping manager of Ross Frozen Foods, Mr H. A. Bateson, during a visit he made to the South Quay factories of Ross Group at Grimsby, accompanied by Mrs Ogilvie. Also in the party, pictured inspecting a selection of frozen whole fish and quick frozen foods from the cold stores, are Mr J. Tilley, director of Thos. Dowd & Co, Ross Liverpool agents who, with Mrs Tilley, listens as Mr Harry Hills reveals the delights of quick-frozen Cream Sponge

Apricot Rum Souffle Omelette

½ oz butter
2 eggs
Caster sugar
2-3 tablespoons rum
2-3 tablespoons apricot conserve

Method

1. Heat conserve gently with a little rum.
2. Season omelette pan with a little salt, and turn grill on to full.
3. Separate eggs.
4. Beat whites until stiff.
5. Add rum to yolks and beat slightly.
6. Fold whites into yolks and rum.
7. Melt the butter in seasoned pan (having first removed with absorbent kitchen paper the salt; the pan should not be too hot or the butter will turn brown).
8. Pour in egg mixture and cook fairly quickly until the underneath is golden brown.
9. Put under hot grill and cook until golden brown.
10. Turn on to hot dish, dredge with caster sugar and pour over hot conserve.

Walnut Loaves

1½ lb plain flour
1 tspn baking powder
1 tspn bicarbonate of soda
½ lb soft brown sugar
2 oz roughly chopped walnuts
1 egg
2 oz butter
½ lb golden syrup
½ pint milk

Method

1. Put flour, sugar, raising agents and walnuts in a bowl—mix together.
2. Gently heat butter, syrup and milk in a pan.
3. Add mixture in pan to mixture in bowl. Stir well.
4. Put in two buttered 2-lb loaf tins with buttered paper at the bottom.
5. Bake in a moderately hot oven (350 deg F: gas 4) for about one hour.
6. Cool on wire tray.
7. Cut when cold and spread slice generously with butter.

Hawaiian Ham Flan

6 oz *rich shortcrust pastry*
6 oz plain flour
1½ oz butter
1½ oz lard
1 egg
Salt

Filling

1 oz butter
1 oz flour
½ pint milk
Seasoning
} Make into sauce

2-3 teaspoonfuls made mustard
1 small or 1 medium tin of pineapple pieces, well drained
2 oz grated cheese

Method

1. Make pastry and line 7in flan ring—bake blind weighted with dried peas in aluminium foil. Remove foil and peas after 15 minutes.
2. Make sauce and add mustard and pineapple. Pile into baked flan case.
3. Sprinkle well with grated cheese and brown in hot oven or under grill.
4. Serve garnished with watercress or parsley.

Butter Pie

8 oz *shortcrust pastry*
8 oz plain flour
2 oz butter
2 oz lard
Water to mix

Filling

1 lb cooked and sieved (or well mashed) potatoes, mixed with 1 oz butter
2 to 3 oz butter

(Optional)
2 oz cheese or 2 chopped hardboiled eggs or 2 oz cooked sliced bacon or 1 cooked chopped onion

Method

1. Make pastry and line dish with half of it.
2. Add cooked potato mixture.
3. Spread butter very generously over it.
4. Put any other filling on top of this, if desired.
5. Cover with the other half of the pastry—decorate with pastry leaves—brush with milk or egg if desired.
6. Bake in a fairly hot oven (450 deg F: gas 7) for about ½ hour (until pastry is cooked).
7. Turn out, if possible, on to wire tray to crisp bottom pastry. Serve hot or cold.

CATERING NOTES

Instant Coffee

THERE ARE about 100 brands of instant coffee on the market; the Consumers' Association Ltd has tested 23 of them. The report was published in the May issue of *Which?* and incorporates the results of chemical analysis; assessment of economy and, in particular, taste and aroma. The 23 powders tested were all composed only of extract of pure coffee. *Which?* says that the amount of caffeine in instant coffee (1-2 grains per cup) is about the same as the amount of caffeine in a cup of ordinary coffee. The suggested medical dose of caffeine as a *stimulant* is five times as large. A panel of six participated in a series of tasting sessions to establish the similarity (or otherwise) of instant coffee to ordinary coffee. The control drink was freshly ground, freshly made strong coffee (2 oz of coffee to a pint of water). The testers found that Nescafe Blend 37 was outstanding for its coffee taste. Three others, Lyons, Nescafe and St Michael, were found to be good. The taste tests on instant coffee reported in *Which?* were *not* preference tests and the results will not tell which coffee a reader is likely to like the most. The assessment in *Which?* merely shows which of the coffees have the most natural coffee-like flavour. For those who want an instant coffee that tastes as much as possible like ordinary coffee, Nescafe Blend 37 at 3s 6d a 2-oz tin (0.9d a cup) can be considered the "best buy" among the 23 tested. The control-drink coffee used by Consumers' Association cost about 2d to make: the most expensive of the instant coffees tested by *Which?* costs 1.2d per cup, all the others less than 1d a cup and most of them cost about 0.7d a cup.

BEA Introduces "Smorrebrod"

BEA is serving the *smorrebrod*, Danish open sandwiches, to its first-class passengers on flights where full main meals would be inappropriate. The *smorrebrod* sandwich has been chosen as the ideal answer to a problem which has long beset the airlines—what to give a passenger as a between-meals snack? The problem has become more acute with faster jet and prop-jet airliners providing many more between-meal flights. To advise and help train BEA's chefs at London Airport in the correct preparation of *smorrebrod*, BEA engaged the services of Miss Ida Davidsen, daughter of the owner of the most famous *smorrebrod* restaurant in the world, the Oska Davidsen in Copenhagen. *Smorrebrod* has a base of bread covered with cold meats, poultry, fish or cheese and garnished with any of a score of other tasty delicacies. Many of the more exotic sandwiches have been given names such as Rush Hour, Union Jack, Strip Tease and Hans Christian Andersen. A new name will soon be added to the list—the "BEA"—specially devised by Miss Davidsen to honour the occasion. BEA can offer about 30 different varieties of *smorrebrod* to its first-class passengers; each sandwich takes an expert chef, working with an assistant, about two minutes to prepare.

Cooking with Guinness

Here are some more suggestions for dishes in which Guinness can be used with advantage:

Spaghetti with Mushroom and Cheese Sauce
(for 4)

- ½ lb mushrooms
- 2 oz onion chopped minutely
- ¾ oz butter
- 1 gill Guinness
- ½ gill milk
- ½ teasp salt
- Pepper
- ½ oz flour
- 2 tablesp tomato sauce
- 4 oz Cheddar cheese coarsely grated
- 8 oz spaghetti

Wipe the mushrooms, or wash if necessary, and chop into large pieces. Sauté the onion gently in the butter in a saucepan for 4-5 minutes until it is limp but not coloured. Add the mushrooms, Guinness, milk and seasoning. Cover the pan and simmer for 10 minutes. Make the flour into a smooth paste with a little milk and the tomato sauce, stir into the mushroom mixture, bring to the boil stirring and boil for a minute or two. Remove from the heat and stir in the cheese until melted.

Meanwhile cook the spaghetti. Hold it in a bundle and lower the ends into boiling salted water, then gradually wind the rest round the inside of the pan as it becomes supple enough to bend. Boil for 10-12 minutes until just tender. Drain, return to the pan and turn round in 1 oz of melted butter, if desired.

Spaghetti with Mushroom and Cheese Sauce

Turn into a hot dish, pour over the mushroom sauce and garnish with half slices of tomato and sprigs of parsley.

Steak, Kidney and Oyster Pudding
(for 4-5)

- ½ lb plain flour
- 4 oz suet
- Salt, pepper
- 1 small egg
- 1 lb stewing bee
- 6 oz kidney
- 2 oz mushrooms
- 2 shallots or 1 small onion
- ½ teasp dry mustard
- A few oysters
- ½ gill Guinness
- Water

Make a paste with the flour, pinch of salt, egg and sufficient water to moisten. Roll out and line a pudding basin with three-quarters of the dough.

Trim the fat from the meat (a little may be included with the meat), remove the core from the kidney and cut all into small pieces. Dice the vegetables. Sprinkle everything with salt, pepper and mustard.

Fill the basin, lay the oysters on top and pour over their liquor. Add the Guinness and sufficient water barely to half fill the basin. Cover the pudding with the remaining dough, moistening the edges to stick together firmly. Tie down with greaseproof paper and steam for 3-4 hours. Remove the paper, turn out and serve.

Strudeloo
(for 4)

- 1½-1¾ lb stewing beef
- ½ lb carrots
- 8 small onions or larger onions cut into halves or quarters
- 1 oz dripping or lard
- 1 oz flour
- 1 gill Guinness
- ½ pint stock, or made with a cube
- 1½ teasp mixed herbs
- 1½ teasp salt
- Black pepper
- 2 tablesp chopped sweet pickle

Trim fat off beef and cut into convenient sized pieces. Peel and slice carrots fairly finely.

Fry the meat and onions in the dripping until the meat is brown all over. Remove to a casserole. Add flour to the pan and blend in, then away from the heat gradually stir in the Guinness and stock, add the herbs and seasonings and bring to the boil stirring. Mix the pickle into the sauce and pour over the meat. Cover the casserole and simmer gently in the oven for 1½-2 hours, or until the meat is tender.

Stuffed Peppers with Guinness
(for 4)

- 4 sweet peppers (about 4 oz each)
- 3 oz potato crisps
- 4-5 oz onion chopped finely
- 2 oz bacon fat or butter
- 6-7 oz minced ham or tongue
- ½ teasp each chopped oregano and savory
- Salt, pepper
- ½ gill Guinness
- 15½ oz can tomato soup

Wash the peppers and cut round the stalks carefully. Pull off the caps and reserve them. Remove all the seeds. Crush the potatoes finely.

Fry the onion in the fat to a golden brown, add the crushed potato and continue frying gently for 2-3 minutes. Mix in the meat and herbs, and season to taste. Stuff the peppers with the mixture, replace the caps and lay them in a casserole.

Mix together the Guinness and soup and pour over the peppers. Cover the casserole and simmer in the oven for 40-50 minutes, turning over the peppers once.

Tomato Sauce (for 4)
To serve with fish or meat

2-3 oz onion	½ pint water
2 oz carrots	1 gill Guinness
1 small stick celery	1 dessertsp sugar
½ oz butter	1½ teasp salt
3 tablesp tomato purée	Good shake pepper

Peel the onion and carrots and slice finely with the celery. Fry them gently in the butter in a saucepan for about 5 minutes, until they are just beginning to colour.

Dilute the tomato purée in the water and add to the vegetables with the rest of the ingredients. Cover with a lid and simmer slowly for 30-35 minutes. Rub everything through a fine sieve, adjust seasoning and reheat.

Welsh Rarebit
(for 2)

2 tablesp Guinness	1 egg yolk
4 oz grated Cheshire cheese	2 slices well-buttered toast
Salt, pepper, mustard	

In a saucepan mix the Guinness, cheese, and seasonings to taste. Melt over very gentle heat, stirring, to a thick creamy paste. Remove from heat, allow to cool slightly, then beat in the egg yolk quickly. Pour the mixture over the toast and immediately brown lightly under the grill.

Flavoured Butter in Sandwiches

Flavoured butters, with slightly unexpected taste combinations, can help to add interest to sandwiches. The following recipes are suggested by the Butter Information Council: *Cheese Butter:* Work 1½ oz grated cheese into 2 oz softened butter. Add a pinch of mustard or a dash of Worcester sauce. *Tomato Butter:* 1 dessertspoon tomato sauce or puree, 2 oz softened butter, salt and a squeeze of lemon juice. *Green Butter:* 1 tablesp finely-chopped watercress, 2 oz softened butter, salt and a little lemon juice. *Nut Butter:* 2 tablesp chopped walnuts, 2 oz softened butter. *Orange Butter:* 1 dessertsp orange juice, grated rind of ½ orange, ¼ dessertsp sugar, 2 oz softened butter. Suggestions for the sandwiches are:

Triple Decker: 1st layer, Tomato Butter with hard-boiled egg slices; 2nd layer, Cheese Butter with lettuce and spring onions; 3rd layer, Green Butter with ham.

Pinwheels: Remove crusts from large loaf. Cut thin lengthwise slices, spread with Green or Tomato Butter and grated cheese, roll up tightly, keep wrapped overnight in a cool place. Serve cut into rounds.

Ribbons: Spread two slices of brown and one of white bread with Nut Butter. Sandwich one layer with scrambled egg, the second with mashed salmon, sardine or liver sausage. Wrap overnight and slice into 1in fingers.

Orange Delights: Spread bread with Orange Butter, and fill with chicken or cold meat.

Cheese Rounds: Using a round loaf (or bread cut with a round cutter) spread two slices with Tomato Butter and sandwich with a round slice of cheese.

New Sausage

A catering division set up by Wall's meat products company is to operate initially in central, East and West London and Slough areas. Plans are in hand for covering a wider area in greater London this year. Formation of the new division was announced at the opening of the Catering Kitchens at 39 Queen Street, London EC4, in July. A new departure for T. Wall & Sons (Meat & Handy Foods) Ltd is the introduction of a special sausage for the catering trade. Made both in pork and beef, these will be sold as loose links and will be available at a competitive price. The main functions of the Catering Kitchens will be to design and test recipes suitable for catering quantities. A permanent staff will answer queries in connection with recipes for catering, and arrangements can also be made for visitors from catering organisations to be shown round the kitchens. "This new development has been undertaken because of the large market which it will undoubtedly open up," said Mr John H. Penny, marketing director of the company. "We foresee a national distribution of catering products in the reasonably near future. We intend to back up our trade with first-class deliveries. The Catering Kitchens recommend the following recipes:

Sausage Italienne
6 lb Wall's Pork Sausages
2½ lb spaghetti
2 lb onions, finely chopped
½ lb margarine
½ lb bacon, chopped
2 × A 2½ peeled tomatoes
Seasonings

Cook the sausages until well browned all over. Cook the spaghetti in boiling water for 15-20 minutes. Sauté the onions and bacon in the margarine until tender, add the tomatoes, seasonings and spaghetti. Serve the hot spaghetti and sausages together.

Number of portions: 24.

Approximate cost: 11½d per portion.

Florida Salad and Sausages
6 lb Wall's Pork Sausages
3 lb white cabbage, shredded, blanched or raw to taste
8 oranges, peeled and segmented, removing pith and skin
3 lb tomatoes, quartered
2 lb cooking apples, peeled, cored and sliced
Salt, pepper and mustard
½ pint vinegar
½ pint olive oil
Chopped parsley

Cook sausages and leave to become cold. Mix together the cabbage, orange segments, tomatoes and apples. Make a dressing with the seasonings, oil and vinegar and chopped parsley. Toss the salad in this dressing. Serve with the cold sausages. Chicory can be used instead of cabbage for a more unusual salad.

Serves 24 portions.

Approximate cost 10½d per portion.

Sidro Sausages
6 lb Wall's Pork Sausages
½ lb margarine
1½ lb mushrooms or stalks
4 oz plain flour
4 green peppers, sliced and blanched
2½ lb tomatoes, quartered
1½ pints cider
½ pint water
4 tablespoons tomato purée

Cook sausages until well browned all over. Keep hot. Melt margarine in large pan, add mushrooms, fry gently, sprinkle in flour, add peppers, tomatoes, cider and water and purée. Bring slowly to simmering point, and cook for 20-25 minutes. Season to taste. Drain fat off the sausages and pour sauce over them. Serve hot.

Serves 24 portions.

Approximate cost 1s 4d per portion (costed with mushrooms).

New Ways of Fish Processing

With modern fish processing, fish are beginning to be found in dishes once thought unlikely for finny things. For instance, there are now fish *wieners*, noodles and flour, fish sauces, tuna "ham" and shrimp "*krupuks*" which are eaten like potato chips. Processing has not only developed new fish products, but by applying modern methods of preservation, has enabled countries to boost their fish consumption and exports. In the Indo-Pacific region, where the hot, humid tropical climate and lack of developed transportation have acted as deterrants in the marketing of fish, processing has been one of the keys in fishery development. India, within the past six years, has coupled the discovery of new shrimp beds with improved methods of handling and processing to raise her modest shrimp catch to where she is now the world's second exporter of shrimp. The yield of marine fish in the Indo-Pacific area (excluding Japan and Mainland China) has steadily climbed from a 2,700,000 metric tons catch in 1954, to a 3,400,000 metric catch last year. Processing has kept pace with the output, devising new products such as the fish sausage or *wiener*. These *wieners*, a tasty combination of chiefly tuna, marlin and whale meat, are manufactured in Japan and exported to the United States and to such citadels of *wiener* consumption as Germany and Austria. This Japanese industry, developed in the past five years through processing, began in 1954 with a 2,000 tons output. This rose to 59,000 tons in 1958 and the industry predicts a 100,000 tons production in the near future. One factory alone manufacturers 500,000 pieces of fish sausage daily.

Dielectric Heating

There are no limitations to the potential applications of dielectric heating. For many years Redifon has produced radio frequency generators primarily for use in furniture and woodworking industries for bonding, laminating, shaping, and moisture extraction, but recently Redifon engineers have been investigating the problems of the food industry—bulk handling and processing. One of the greatest advantages of an r.f. generator is its ability to heat the work quickly and uniformly, and it is envisaged that in the future immense saving in time and cost will be attained by the use of this type of

Higher quality costs less with Symington's

With Symington's soups, you can give your customers real *quality*—at the lowest possible cost per portion. That's one reason why Caterers serve more Symington's than any other prepared soups. There are 11 delicious varieties of Symington's soups. They are ideal with meat or vegetable stocks, and for improving 'made-up' dishes.

YOU CAN DEPEND ON SYMINGTON'S

Symington's soups in 7 lb. bags and tins—famous for quality and economy, Tomato, Mushroom, Oxtail, Kidney, Celery, Green Pea, Lentil, Mock Turtle, Mulligatawny, Pea, White Vegetable.

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D

generator in large catering establishments. In specialised kitchens, food can be prepared, packed, and quick-frozen a long time before it is required; thirty seconds or so in an r.f. oven produces a piping-hot meal, uniformly heated, and as fresh as the day it was prepared. An r.f. generator also scores heavily over other conventional types of oven, reducing the time taken, from hours to minutes, for cooking large joints of meat, poultry, puddings, and other items where, normally, the heat penetration time is slow.

Fantastically low cooking times can be accomplished. For example, a 5-lb chicken takes 12 minutes (approximately 2½ minutes per pound). Reheating times are even less. A 2-lb Christmas pudding required only three minutes, whereas normal steam heating would have taken 1½ hours. A rule-of-thumb estimate for reheating times is ten seconds per ounce, but other factors, such as moisture content and initial temperatures, also govern the process time.

Recent years have seen great changes in methods of serving meals, particularly in industrial catering, where a large number of people must be served in the shortest possible time. Probably not too great a pipe dream will see a completely automatic system whereby the diner puts a coin into a slot and selects a meal, which is then removed from deep-freeze, cooked and served in half a minute. Such a system is possible by microwave cooking, while the saving in staff, time and overheads is of inestimable value.

Genuine Gorgonzola

Among Italian typical cheeses, Gorgonzola undoubtedly occupies a leading position. Its name derives from that of the town of Gorgonzola, on the Po River plains some 12 miles from Milan. To this territory were once driven the herds of cattle which in the fall were moved from the Alpine pastures to the plains, where they found a suitable environment and good pastures. The need for using locally considerable quantities of milk resulted in the production of a particular type of cheese, Gorgonzola, made from the milk of cows tired by the long drive from the mountains. The beginning of the production of this type of cheese is believed to date back to around the year 1000 and it antedated that of the *grana* (Parmesan) cheese, to which specific references are found in records dating back to the early centuries after the year 1000. Gorgonzola is a high-fat, soft, uncooked table cheese, obtained exclusively from whole, fresh cow's milk. It is made in cylindrical shapes averaging between 13 and 26 lb in weight. The body of the cheese is ivory-coloured, with the typical bluish mould streaks. Its distinctive taste is quite on the sharp side.

The total production of this type of cheese is at present around 3,200 to 3,300 tons a year. In the past it was produced in small dairies processing 130 to 260 gallons of milk per day, and the fresh cheese (before the development of the refrigeration industry) was sent for ripening in the characteristic natural caves of the Valsassina region. Later, as the making of this cheese extended to other provinces of Lombardia and Piemonte regions, the process was industrialised and taken over by large industrial plants, fully equipped for both the processing and ripening of the cheese. In the meantime, in the areas where production of Gorgonzola had been introduced, special refrigerated warehouses were built, and are now used for the ripening of the cheese made in dairies not equipped with their own cold-storage facilities. The name Gorgonzola can be used only for the labelling and selling of Italian cheese meeting the prescribed specifications and produced in the territory of the Provinces of Bergamo, Brescia, Como, Cremona, Cuneo, Novara, Pavia, Varese and Vercelli.

Safety Footwear

The idea of making footwear that gives some protection against industrial accidents originated in the United States. The pioneer was Mr Arthur Williams of Worcester, Mass. This was in the early years of the century; by the early 1930s Mr Williams had devised the internal steel cap, and in the succeeding years he made a large quantity of safety shoes—and a not inconsiderable fortune. Although small quantities of steel-cap footwear were produced in Britain before the war, largely through the initiative of Imperial Chemical Industries Ltd, it was not until after the war that the idea really began to get under way. Mr George Denton had met Mr Williams in America and, after much negotiation and research, prototypes of a carbon-steel internal cap were devised for testing out in footwear for the British market. Ultimately equipment was made for the manufacture of the caps in England and a small company formed to distribute them under the title of International Safety Products Ltd. Mr Denton, its managing director, invited Mr Williams and several British footwear manufacturers to join him on the board. At first only two manufacturers were prepared to equip themselves for the manufacture of safety footwear on a substantial scale. Mr George Denton's firm in Rushden, Northants, began it, and was closely followed by the parent company of Protective Footwear Service Ltd, of Kingswood, Bristol. Two other firms entered the field later, and many more have followed.

Kosher Cooking

For many years purchasing activities on behalf of the Zim Israel Navigation Co Ltd have to a large extent been handled by the Haifa shipchandler Layam Company Ltd. Zim's passengers come from every corner of the globe and to comply with the diversity of wishes, the Layam people have to choose from a number of suppliers abroad. The responsible catering management of Zim say that travellers from Britain—and for that matter from the English-speaking world altogether—seem to be particularly pleased with the shipping company's catering and cooking results. Zim's kitchen facilities and cooking installations, as well as dining room arrangements, are maintained on strictly Jewish religious (*kosher*) lines. Non-Jews will probably know that such arrangements do not permit the cooking, preparing, mixing and serving of meat and milk (butter, cheese etc), thus presenting—as can be imagined—a certain amount of difficulty in presenting menus which satisfy individual tastes and wishes. Zim's catering officers, however, emphasise that all such "problems" have been solved easily and to the full contentment of passengers. It has, of course, been necessary to omit fried bacon or ham

Part of the kitchen in the Zim Israel Navigation Company's passenger liner "Theodor Herzl"

entirely from the traditional English breakfast menu. In a Zim liner, the Englishman's breakfast consists, among others, of kippers (for this purpose imported from nearby Cyprus), smoked haddock and similar delicacies. The following are two menus presented recently in the Zim passenger liner *Jerusalem*.

Dinner

Fresh Pineapples
Consomme Celestine
Carmel Hock Fried Lemon Sole
Tartar Sauce
Adom Atik Curry Chicken
Chutney
Rice
Fresh Garden Peas
Oriental Salad
Chocolate Cream
Cointreau Demi Tasse
Drambuie
Cherry Heering

Captain's Farewell Dinner

Choice of Iced Juices
Consomme "Leopold"
Pasticcia à la Calabrese
Chicken Maryland
Cabbage Flamande Olive Potatoes
Peas
Lettuce with 1000 Island Dressing
Flaming Baked Alaska
Fresh Fruit in Basket
Demi-Tasse Tea
Wine of Israel

Tourist Class

Super-luxury on North Atlantic Jets

A new move in the battle for passengers on the North Atlantic air routes is being made by Trans World Airlines. The new service scheme, christened "Royal Ambassador", came into operation on June 16, after nearly a year of intensive preparation including special training of cabin staff. During the flight—less than 7½ hours from London to New York—Royal Ambassador passengers are attended by special hostesses, one assigned to each ten travellers. Fresh flowers decorate the cabin; meals are served on fine porcelain together with stem crystal glassware. Specially embossed table linen and napkins feature the Royal Ambassador theme. As a prelude to a *cordon bleu* dinner, caviare carts come down the aisle, with hostesses serving also salmon, lobster, devilled eggs and ham and melon appetisers. Clip-on tables with nuts and olives are provided as passengers take their cocktails and hot *hors d'œuvres* are also served before dinner. Royal Ambassador dinners consist of seven courses, offering a choice of seven separate entrées and also including soup, hot rolls, dessert, fruit and cheese. Champagne and vintage wines accompany the food.

Fish Bakes

Some interesting recipes for preparing fish bakes have been compiled by Mac Fisheries Ltd, and the following recipes all serve four portions.

Somerset Casserole

1 lb fillet of cod or haddock
Salt and pepper
2 oz mushrooms, sliced
1 medium tomato sliced
¼ pint cider
¾ oz margarine
¾ oz flour
1 lb creamed potatoes
A little grated cheese
Sliced tomato and parsley to garnish
A little margarine

Cut the prepared fish into small cubes and place in a shallow casserole with seasoning to taste. Add the mushrooms, tomato and cider and dot with shavings of margarine. Cover the casserole and bake for about 25 minutes in a moderately hot oven (Gas mark 5, electric setting 375). Strain off the liquor and use it to make a sauce with the ¾ oz margarine and flour. Pour the sauce over the fish. Arrange creamed potato round the edge of the dish, sprinkle grated cheese in the centre and garnish with sliced tomato. Return to a hot oven (Gas mark 8, electric setting 450) to brown; alternatively, brown under the grill. Garnish with parsley and serve hot.

Herrings—Tails in Air

4 herrings
2 oz fresh breadcrumbs
1 small onion, grated
1 tomato, chopped
1 level tablespoon chopped parsley
Salt and pepper to taste
A little milk, if necessary
Sliced tomato for garnish

Scale the herrings and remove the heads, then clean and bone but leave the tails on; reserve the roes, if any. Trim the tails and cut off the fins with kitchen scissors. Chop the roes and mix with the crumbs, onion, tomato, parsley and seasoning and, if necessary, bind with a little milk. Lay the herrings flat on a board, put a tablespoon of stuffing on the head end of each and roll up towards the tail. Pack tightly into an ovenproof dish, with the tails uppermost, and garnish with slices of tomato. Cook in a moderately hot oven (Gas mark 6, electric setting 400) for ½ hour.

Cider-Soused Mackerel

4 small mackerel, approximately 6 oz. each
2 oz butter
¼ pint cider
2 onions, finely chopped
Salt and pepper
1 level tablespoonful cornflour, blended with 2 tablespoons cold water

Garnish: 4 stuffed olives, sliced (optional)

Wash and bone the mackerel and fold back into their natural shape. Melt the butter in a casserole and stir in cider, onion and seasonings. Turn the mackerel in the liquid, cover with a lid, sheet of aluminium foil or greaseproof paper and bake in a very moderate oven (Gas mark 3, electric setting 335) for about 45 minutes. When cooked, pour the liquor into a small saucepan and keep the fish hot. Stir the cornflour blended with water into the sauce, bring to the boil, stirring constantly and simmer for 2 minutes. Pour the sauce over the mackerel and garnish with a line of sliced olives down the length of each fish.

Fillets of Whiting au Four

1 oz margarine
1 level tablespoonful finely chopped onion
4 oz mushrooms
1 oz flour
¼ pint milk
1 level tablespoonful finely chopped parsley
Salt and pepper to taste
8 small fillets of whiting (approximately 1½ lb.)
1 oz grated cheese

Melt the margarine and fry the onion and chopped mushroom stalks until tender. Add the flour and cook 2-3 minutes, then stir in the milk and bring slowly to the boil, stirring all the time; cook for a further 5 minutes, add the parsley and season to taste. Spread a thin layer of sauce over the bottom of an ovenproof dish, fold the fillets in halves and place in the dish; cover with the remaining sauce and sprinkle with the cheese. Arrange the mushroom caps, underside up, down the centre of the dish with a shaving of butter on each. Bake in a moderately hot oven (Gas mark 5 electric setting 375) for 25-30 minutes.

Fish and Shrimp Pie

1 small onion, chopped
1 oz margarine
1 oz flour
¼ pint milk
Salt and pepper to taste
¼ pint shrimps or prawns (or 2 oz. peeled shrimps)
1 lb creamed potato

Saute the onion in the margarine until soft, stir in the flour and cook for 2 minutes. Gradually add the milk and bring to the boil while stirring; boil gently for 5 minutes and season to taste. Pick the shrimps or prawns, reserving a few whole ones for garnish, and add to the sauce with the flaked fish. Turn into an ovenproof dish and pipe potato round the edges of the dish. Bake in a hot oven (Gas mark 7, electric setting 425) for 25 minutes. Garnish the centre with the whole shrimps and serve piping hot.

Smoked Fish Pie

1¼ to 1½ lb smoked haddock or cod fillet
¼ pint milk
1 oz margarine
1 oz flour
2 oz teaspoons capers
Seasoning to taste
2 hard boiled eggs, sliced
¼ to 1 lb cooked sliced potatoes
A little grated cheese

Poach the fish in the milk and when cooked, carefully strain off the milk and use this with the margarine and flour to make a sauce. Flake the fish, removing any skin and bone, and add to the sauce with the capers and seasoning to taste. Place half the mixture in an ovenproof dish, add the sliced eggs and then the rest of the fish. Cover the top with potatoes, arranging them so that the slices overlap slightly. Sprinkle a little grated cheese over the top and cook in a hot oven (Gas mark 7, electric setting 425) for 20-25 minutes.

Baked Haddock and Orange

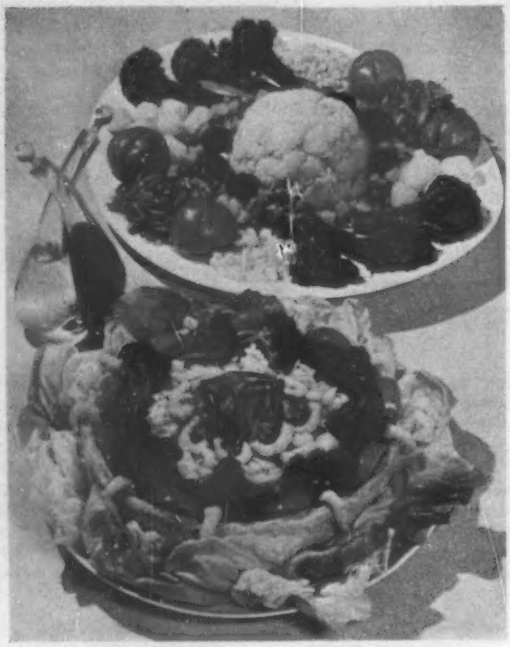
1 orange
1½ lb fillet of haddock
Salt
Water
2 level teaspoons cornflour
½ level teaspoon sugar
Juice of 1 lemon

Grate the rind from the orange, remove the pith and cut the pulp across into slices. Cut the fish into convenient portions for serving and arrange in a greased dish. Sprinkle with a little

salt, add the lemon juice and arrange the slices of orange over the top. Cover with greased paper and cook in a moderately hot oven (Gas mark 6, electric setting 400) for 15 to 20 minutes. Strain off the liquor and make up to ¼ pint with the water. Blend the cornflour with this, add the grated orange rind and sugar and bring to the boil, stirring. Boil gently for 3 minutes, adjust the seasoning and serve with the fish.

Recipes of the Month

These are Smethursts "Recipes of the Month" for August, September and October:



Vegetable Flan

Ingredients	*Quantity*	
Cheese Pastry: using the following proportions.		
Flour	1 lb	*Portions:* 6 to 8
Margarine	8 oz	*Cost per portion:* A 6 to 8
Cheese, finely grated	8 oz	portion flan (8 in case)
Eggs, yolks	2	approx. 8d to 6d. a
A little water		portion
Salt, cayenne		
A selection of the following vegetables may be used:		*Time:* 1 hour approx.
Smethursts frozen green broccoli spears		*Equipment requirements:*
Smethursts sliced green beans		Oven and hotplate
Smethursts cauliflower		
Smethursts green peas		
Smethursts brussels sprouts		
Smethursts diced carrots and peas		
Eggs, hard-boiled and chopped		
Tomatoes		
Aspic, for glazing		

Method:

1. Prepare cheese pastry cases in the normal way. Bake blind and allow to cool.
2. Cook vegetables according to the directions, drain carefully, allow to cool and then arrange in flan cases with other ingredients.
3. Glaze the filling with a little aspic—allow to set. Serve cold accompanied by a green salad.

N.B.—A similar selection of vegetables may be served as a Hot Vegetable Platter, with the addition of potatoes, sweet corn, mushrooms and whole tomatoes. After assembling, the vegetables can be dressed with either Bechamel Sauce, or melted butter and lemon juice.

Braised Beefburgers and Vegetables

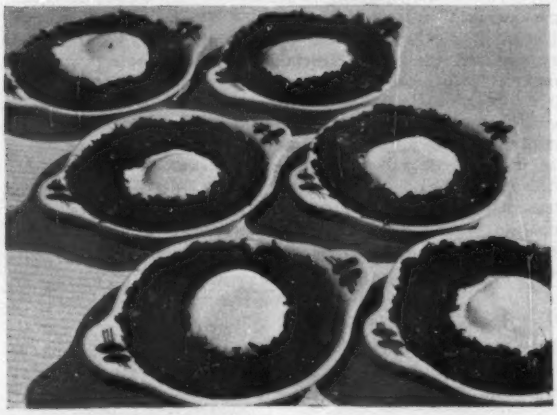
Ingredients	*Quantity*	
Onions, peeled and sliced thinly ...	1 lb	*Portions:* 24
Carrots, peeled and sliced thinly ...	1 lb	*Cost per portion:* 9½d approx
Dripping	8 oz	*Time:* 40 to 50 minutes
Flour	8 oz	approx
Meat extract } good brown stock	2 t'spns	*Equipment requirements:*
Water } ...	4 pints	Hotplate, oven
Smethursts broadbeans	1 × 2½ lb carton	
Smethursts beefburgers	1 carton (24)	

Braised Beefburgers

Method:

1. Fry the onions and carrots in the dripping, until tender.
2. Stir in the flour and cook for 3 to 4 minutes.
3. Add the stock gradually, bring to the boil and simmer gently for 15 minutes.
4. Add the frozen block of beans and continue cooking until separated.
5. Turn into a shallow baking tin, place the beefburgers on top and bake at 400° F for 20 minutes.

Note: This is a recipe primarily suitable for large-scale catering.



Spinach Egg Nests

Ingredients	*Quantity*	
Smethurst's Chopped Spinach ...	1 × 3 lb	*Portions:* 12
Margarine	4 oz	*Cost per portion:* 7d approx
Eggs	12	*Time:* 30 minutes approx
Salt and pepper	To taste	*Equipment requirements:* Hot plate and oven

1. Cook the spinach according to directions on the carton. Drain well and season to taste.
2. Add 3 oz of the margarine and mix.
3. Divide between 12 individual ovenproof dishes, which have been lightly greased, and make a hollow in the centre.
4. Break an egg into each hollow, sprinkle with a little seasoning and put a dot of margarine on each.
5. Place the dishes on a baking sheet, cover with a piece of greased paper and bake at 350 deg F for about 15 minutes, or until eggs are set.

Caviar for the General

Gourmets, savouring caviar lightly spread on toast, have often stopped in mid-bite and given thanks for the sturgeon from whence it came. But not the caviar industry. For with the blessing of caviar comes tons of sturgeon—a boon in one country, a problem in another. Four species of sturgeon abound in the waters of

the Caspian Sea and provide the roes for 96 per cent of the world's yearly 2,000 tons production of caviar. Ninety per cent of this caviar is produced by Russia, 5 to 6 per cent by Iran. In Russia, the sturgeon, an excellent meat fish, is readily consumed. But in Iran the sturgeon, which appears to be a non-scaly fish, is unacceptable to a large part of the country's population. So with Iran's yearly 90 to 115 tons of caviar production, there is a necessary by-product—2,000 tons of sturgeon of which about half is unwanted. Along with the surplus sturgeon, there are knotty problems in making caviar. It cannot be frozen nor can it be sterilised by heat. It must be kept cold until consumed or have preservatives added. So how can caviar be preserved so it may be transported and sold?

Up to now, caviar has been preserved with boric acid. This is acceptable in all countries—excepting Germany and the United States, incidentally, two very good markets for caviar. So salt, which gives a slightly salty product an even more salty taste, is added to caviar for export to these two countries.

At the invitation of the Iranian government, Dr Rudolph Kreuzer, Chief of the Fish Processing Section, Fisheries Division, Food and Agriculture Organization (FAO), went to Iran to advise the caviar industry on the preparation of caviar and to make some proposals for utilisation of the sturgeon. There Dr Kreuzer found 40 small fishing stations, properly equipped and carefully operated, where the live sturgeon is gutted and the roe removed and processed, in exactly one half-hour. The caviar is then transported to one of the two main stations where it is rechecked for quality, and graded. Great care is taken to have the caviar exactly graded. A technician, so accustomed to testing caviar that he can tell in which part of the Caspian Sea the sturgeon was caught, reopens every tin of caviar processed at the small stations and tastes their contents. The cans are then resealed and put into cold storage. "First grade caviar is greenish grey with grains that are large and firm," said Dr Kreuzer. "Second grade caviar may range in colour from dark grey to black and the grains are small and more or less loose. Real caviar is never packed in bottles because the light would spoil it and turn it rancid. Caviar is always sealed in round, airtight tins."

There is also pressed caviar, which is not within the commercially accepted grades of caviar but is still very good and fresh. This is made from those roes where the membrane containing the eggs is broken and the eggs are a little soft. These roes are put into hot salt brine at 35 degrees C, and then into a press where the brine is squeezed out and the eggs broken down. The finished product, dried and salty, is put into barrels. Pressed caviar is not well known in the United States or in Europe, for most of Iran's pressed caviar is exported to Russia.

New Zealand Lamb

New Zealand Lamb contains a great many of the valuable proteins and vitamins which are essential for a well balanced diet. The cheaper joints are as nutritious as the more expensive ones. In the following group of costed recipes issued by the New Zealand Lamb Information Bureau are four unusual and interesting lamb dishes. They are prepared specially for large-scale caterers by the Bureau's Catering Adviser. The grading standards established by the New Zealand Meat Producers' Board enable caterers to order by a grade number and to be assured of uniform quality. This, together with the fact that New Zealand lamb is available all the year round, makes it possible for the caterer to offer a wide variety of dependable and profitable lamb dishes on his menu. In addition to offering this costed recipe service, the Catering Advisory Service will be pleased to assist with any catering problems or supply information, recipes or cuts chart dealing with New Zealand lamb. The address is Williams House, Eastbourne Terrace, London W2.

Stuffed New Zealand Lamb and Tomato Patties

Ingredients	*100 portions*	*50*	*25*
Forequarter of New Zealand Lamb...	20 lb	10 lb	5 lb
Concentrated tomato soup	4 × 1 lb cans	2	1
New Zealand lamb seasoning ...	2 oz	1 oz	½ oz
Soft bread crumbs	2 lb	1 lb	½ lb
Ready mixed thyme and parsley stuffing	2 lb	1 lb	½ lb
Melted dripping (retrieved) ...	2 lb	1 lb	½ lb

Method

1. Bone and cube the meat from the Forequarter of Lamb. Pass it through the fine plate of the mincer once.
2. Blend with this ground meat the concentrated Tomato Soup, seasoning and bread crumbs and pass all through the fine plate of the mincer a second time, mix well.
3. Divide the mixture into 3¼-oz pieces; split each in half and make a round flat meat patty of each half.
4. Reconstitute the ready mixed Thyme and Parsley Stuffing which usually requires 2 pints of boiling water to each 1 lb of dry mix. Divide this mixture into 1-oz pieces and make a round flat cake of each the same size as the meat patties.
5. Sandwich two meat patties with a cake of stuffing and place this in well greased baking pans.
6. Brush the tops with melted dripping and bake slowly in a 325 deg F oven for 1 to 1¼ hours. Serve with a rich brown gravy or tomato sauce.

Stuffed New Zealand Lamb and Mushroom Rolls

Ingredients	*100 portions*	*50*	*25*
Forequarter of New Zealand lamb ...	20 lb	10	5
Concentrated mushroom soup ...	4 × 1-lb cans	2 cans	1 can
New Zealand lamb seasoning ...	2 oz	1 oz	½ oz
Soft bread crumbs (1)	2 lb	1 lb	½ lb
Soft bread crumbs (2)	4 lb	2 lb	1 lb
Ready mixed stuffing	2 lb	1 lb	½ lb
Milk	2 pts	1 pt	½ pt
Eggs (standards)	8	4	2
Frying fat (absorption rate) ...	3 lb	1½ lb	¾ lb

Method

1. Bone and cube the meat from the Forequarter of Lamb. Pass it through the fine plate of the mincer once.
2. Blend this ground meat with the concentrated soup, seasonings and bread crumbs (1) and pass all through the fine plate of the mincer a second time, mix well.
3. Divide the mixture into 1-lb pieces and using the slightest amount of flour shape each into a flat oblong 10in × 3in.
4. Reconstitute the ready mixed Thyme and Parsley Stuffing which usually requires 2 pints of boiling water to each lb of dry mix; divide into 5½-oz pieces and make into a thin roll the same length as the oblong of meat mixture.
5. Now proceed as for the making of Sausage Rolls using the meat as you would the pastry and the stuffing for the filling. Cut each roll into 5 × 2in lengths.
6. Blend milk and eggs and use this with breadcrumbs (2) to egg and crumb the rolls.
7. Fry these rolls slowly and gently in deep hot frying fat remembering you are dealing with raw and not cooked meat in the speed of cooking.
   Serve with a rich gravy or mushroom sauce.

When basic cost per unit is	*Cost per portion*	*As cost per unit rises or falls*	*Cost per portion will rise or fall*
Forequarter of lamb at 2/3 lb ...	—	½d lb	0.10d
Cans of soup at 1/6 each	—	½d can	0.02d
Bread crumbs at 1/- lb	—	½d lb	0.03d
Stuffing at 2/- lb	—	½d lb	0.01d
Eggs at 4d each	7.67d	½d each	0.02d
Milk at 6d pt	—	½d pt	0.01d
Frying fat at 1/- lb	—	½d lb	0.015d
Seasoning say at 3d	—	—	—

New Zealand Lamb and Vegetable Pie

Ingredients	*100 portions*	*50*	*25*
Filling			
Forequarter of New Zealand lamb ...	20 lb	10 lb	5½ lb
Flour	1 lb	8 oz	4 oz
New Zealand lamb seasoning ...	4 oz	2 oz	1 oz
Sliced onions	4 lb	2 lb	1 lb
Diced potatoes	4 lb	2 lb	1 lb
Diced carrots	4 lb	2 lb	1 lb
Diced celery	2 lb	1 lb	½ lb
Stock	10 pts	5 pts	2½ pts
Crust			
Self raising flour	8 lb	4 lb	2 lb
Salt	1 oz	½ oz	¼ oz
Shortening	3 lb	1½ lb	¾ lb
Water (good)	2 pts	1 pt	½ pt

Method

1. Bone and cut meat into ¾-in cubes and coat with seasoned flour.
2. Blend meat with vegetables; add stock, mix and see all meat is free from clogging.
3. Place all in well covered pans and cook in oven at 350 deg F for 2 hours.
4. Meanwhile make Pastry Crust in usual manner. Transfer the meat to pie dishes; allow to cool a little and then cover with crust and bake the pies at 350 deg F for about 1 hour.

Catering in the "Canberra"

ARRANGEMENTS IN THE NEW P & O FLAGSHIP

THE twin-screw turbo-electric passenger liner *Canberra* (45,270 grt), built by Harland & Wolff Ltd, Belfast, for the round-the-world service of P & O-Orient Lines, was the subject of a special supplement published with THE SHIPPING WORLD of 31 May 1961. She carries a total complement of about 3,200, and therefore presents special catering problems. Everything has had to be planned for economy in space and time.

As can be seen from the accompanying drawing, the main galley spaces are on the same deck as the two passenger restaurants, the first-class dining room being immediately forward and the tourist-class immediately aft. The whole of the midships section of E Deck is set aside for the galley, which is 150ft long and extends the whole width of the ship (100ft). The fish preparing room, bakery and butchers' shop are situated on the deck below and connected by lifts to the main kitchens. The confectionery shop, still room and cold pantries are all within the main kitchen area.

Of the crew of about 960, a total of 717 are attached to the catering department, restaurant stewards numbering 158. In the first-class dining room, which seats 334, there is one steward to every six passengers, while in the tourist-class dining room, seating 704, the ration is one to eight. With a full passenger list there are two sittings for all meals. The chef's staff numbers 114, and these include 21 bakers, 11 butchers, 11 storekeepers, second chefs, scullions and pantry men and boys.

The two restaurants are the work of Heaton Tabb & Co Ltd. The chief aims in designing the first-class restaurant were to counteract the effect of the very large area of the room, together with the rather low ceiling height, and also to design an artificial lighting scheme which would be bright and cheerful and would counteract any feeling of oppression that the lack of portholes might give, the room being too low down in the ship to allow natural lighting to be used. To solve the first problem the room was broken up visually by means of raising a portion of the ceiling; by designing a sunken area to the centre of the floor, with steps down to it; and by using pillar-casings to form screen walls which would prevent the whole of the room being visible from one point. Further visual dividers were designed in the form of high-backed banquette seating in bays on each side of the ship, each bay seating 12 and forming, as it were, small rooms on their own.

It was considered essential that the bright, cheerful lighting required for breakfast and lunch should be subdued and varied in form for dinner. During the day

A view of the main tourist-class galley in the "Canberra"

The main section of the tourist-class restaurant

In the first-class restaurant the tables are laid with I.C.I. Vynide. The carpet, by the Carpet Manufacturing Co Ltd, is in olive and other greens

there are bright ceiling lights, formed by clusters of glowing cylinders specially woven from glass reinforced plastic, and continuously along each side of the ship there is the effect of strong sunlight filtering through woven straw screens. For evening this lighting is replaced by glowing lanterns in the centre of each table. Finishing materials for the room are mainly natural wood and leather and the floor is carpeted. A type of inlay is worked as a frieze into the wooden balustrade round the centre lower section of the floor and an inlaid relief forms the main feature on the wall behind the Captain's table.

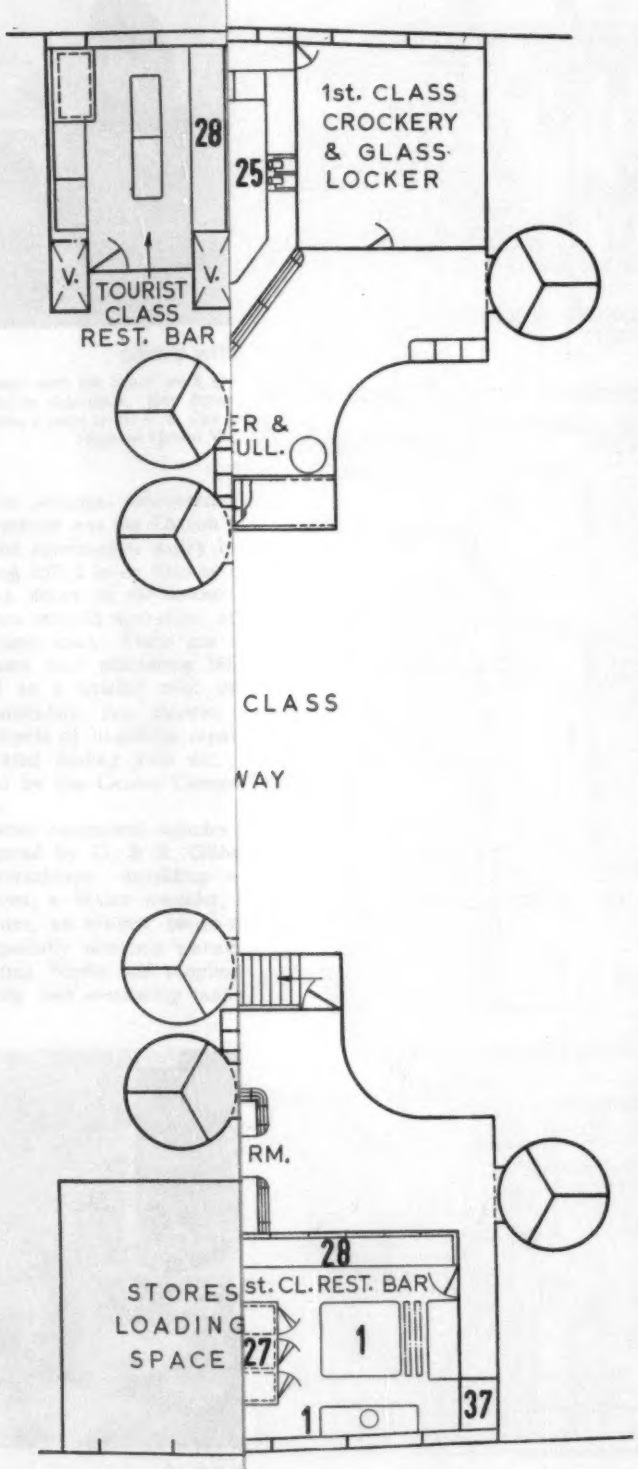
The tourist-class dining room is believed to be the largest restaurant afloat. Outboard, the seating each side is divided by free-shaped fins covered in white Everflex. The bays thus formed when people are sitting prevent

There are 52 Hoover vacuum cleaners on board the "Canberra". Here a steward is using a Model 652 De Luxe cleaner

one from feeling "canteen" fed; but, as each fin is cut away in the centre, the vista across this vast room is not spoiled. The shape of the room is dramatised at night by the white ceiling which describes a parabolic curve almost to the outer edges, where there is a margin of darkness. The centre ceiling is brightly lit white glass fibre. There is a two-way control on the lighting so that it is possible to make it softer for dining at night. The walls are of irridescent greeny-gold glass fibre, that changes as you move; the floor is dark blue, and the leather upholstered bent plywood furniture is in dark blue, and khaki green, and the wood used for this furniture is M'ninga.

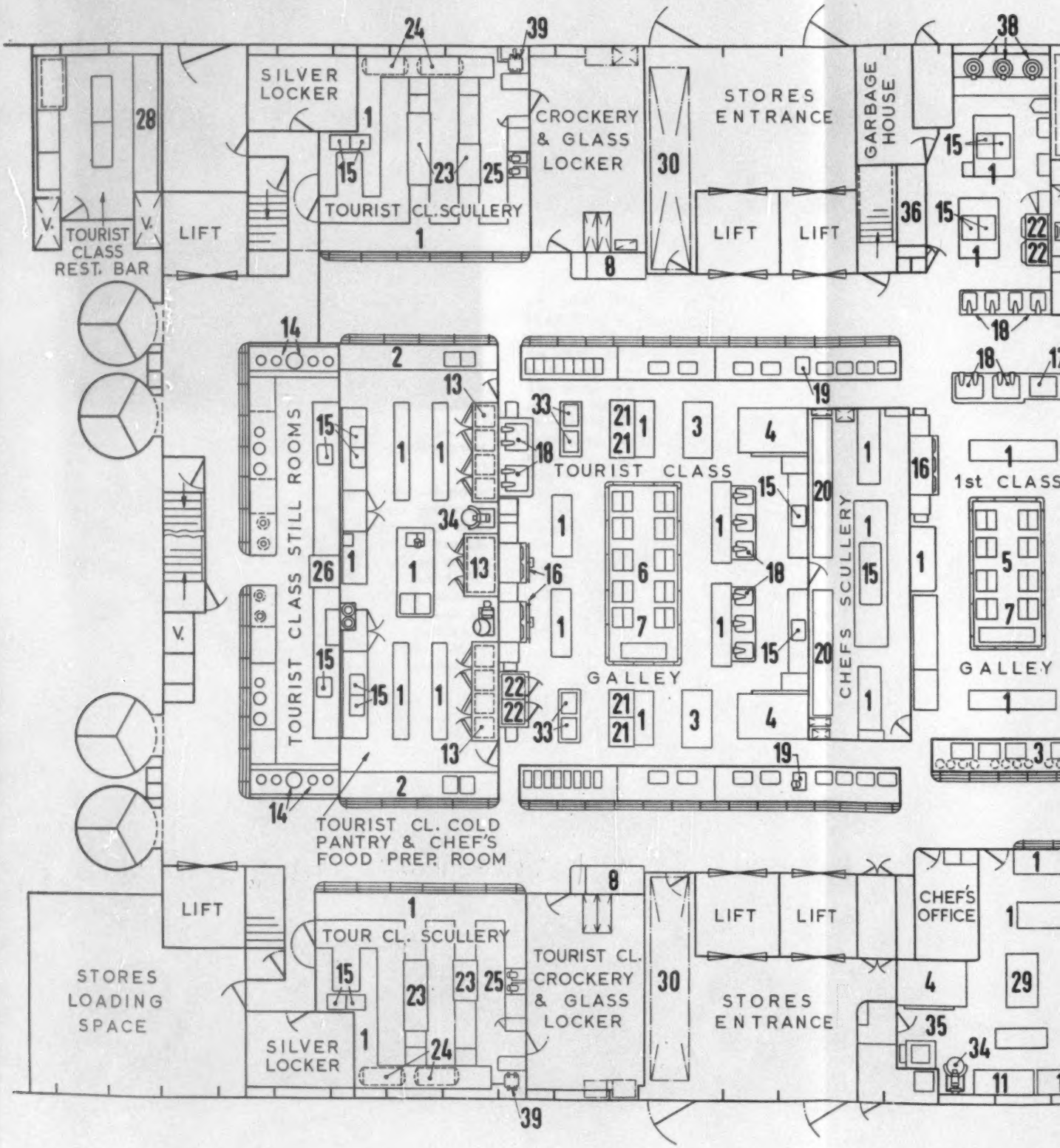
The standard of crew accommodation on board the *Canberra* is of the highest order. Officers are accommodated within the streamlined superstructure. Petty officers, leading hands and ratings are berthed forward on C and G decks. Each crew cabin is provided with a point for personal radios and electric razors, and, in addition, a point for the ship's built-in radio system which gives a choice of two programmes. Ample mess and recreation facilities have been provided; all rooms are fitted with acoustic ceilings. Provision has been made for the holding of religious services for the several denominations carried. All crew accommodation is fully air-conditioned; the diffusing grill which is a central feature in the flush deckhead of each cabin also incorporates a loudspeaker and a sprinkler system.

These photographs illustrate an unusual plywood handrail designed by John Wright. It eliminates the unsightly metal brackets usually associated with handrails: by virtue of its size and shape it affords some protection to the bulkheads: being wood, it has aesthetic appeal and, with cut outs exposing the back panel, which is painted a different colour for each of the three parts of the liner which the handrail serves, it acts as a guide to location. The handrail was fabricated by Coventry Timber Bending Co Ltd under the direction of Fredk. Sage & Co Ltd (who were responsible for its manufacture and installation) from thirteen 1.5-mm veneers bonded with Cascamite "One Shot" Resin glue and bent to a 'U' shape in a radio frequency heated hydraulic press. Manufactured in 8ft sections, the total length of the handrail is over 2,400ft

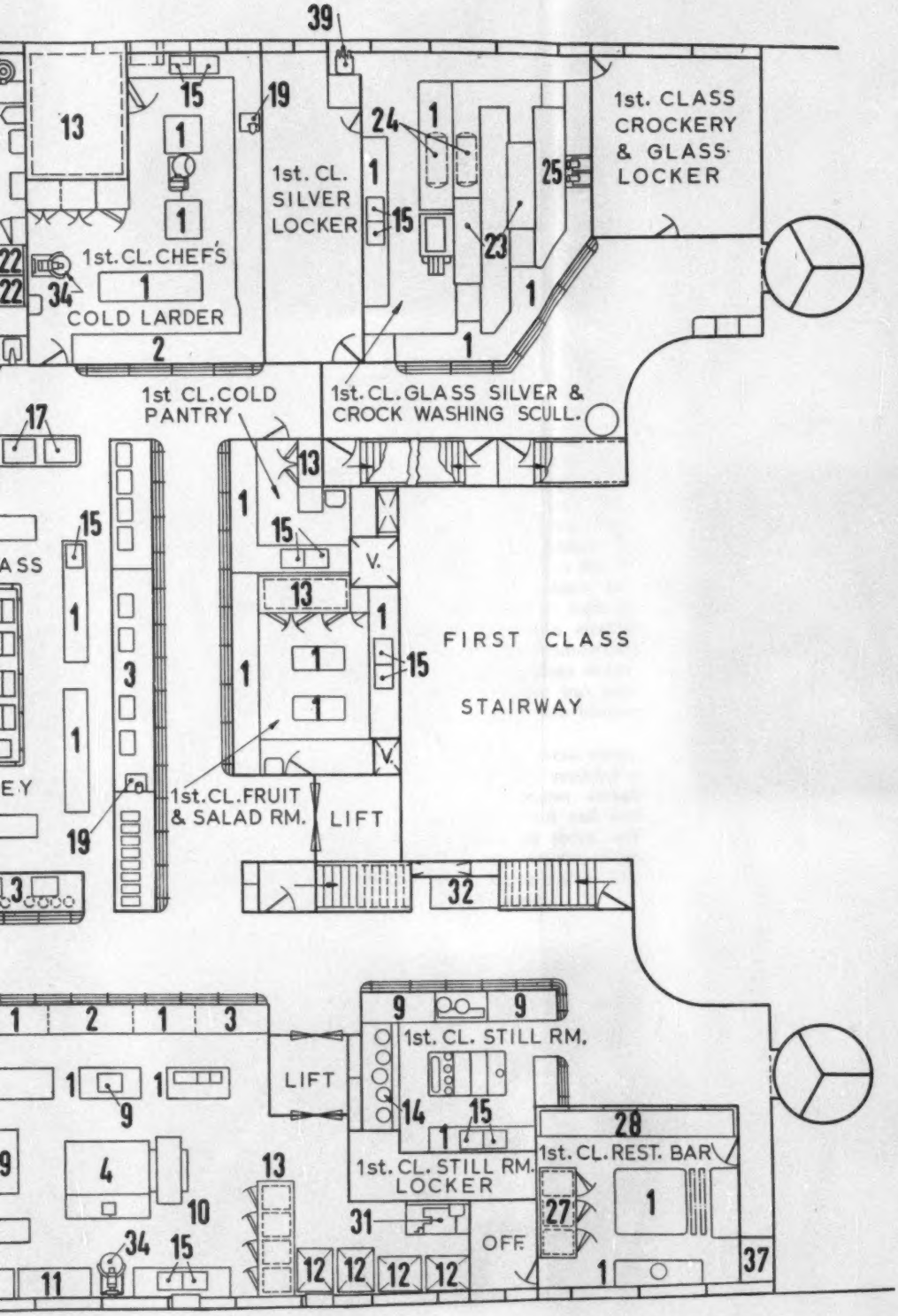


KEY

1 Stainless steel dresser
2 Cold press
3 Electric hot press
4 Fyna reel oven
5 Eight-oven Carron electric range
6 Ten-oven Carron electric range
7 Bain marie
8 Ice cube making machine
9 Electric hotplate
10 Electric pastry roller
11 Marble slab
12 Portable bread trolleys
13 Cold cupboard
14 Still's coffee apparatus
15 Stainless steel sinks
16 Electric fish fryer
17 Ajax steam-heated ham cooker
18 Steam-jacketed boiling pans
19 Hobart gravity feed slicer
20 Three-tier rack
21 Electric salamander
22 Steam oven
23 Hobart dishwasher
24 Calorifier (under)
25 Glass washing machine
26 "Fina" loaf slicer
27 Wine cooling cupboard
28 Beer and mineral locker (cooled)
29 Tray racks
30 Stores conveyor
31 Bread buttering and slicing machine
32 Ice cube making machine
33 Turmix infra grill
34 Mixer
35 Electric heated boiling table
36 Sparred rack for potato storage
37 Lager beer equipment
38 Potato peelers
39 Slop chute



General arrangement of the main galleys and catering services



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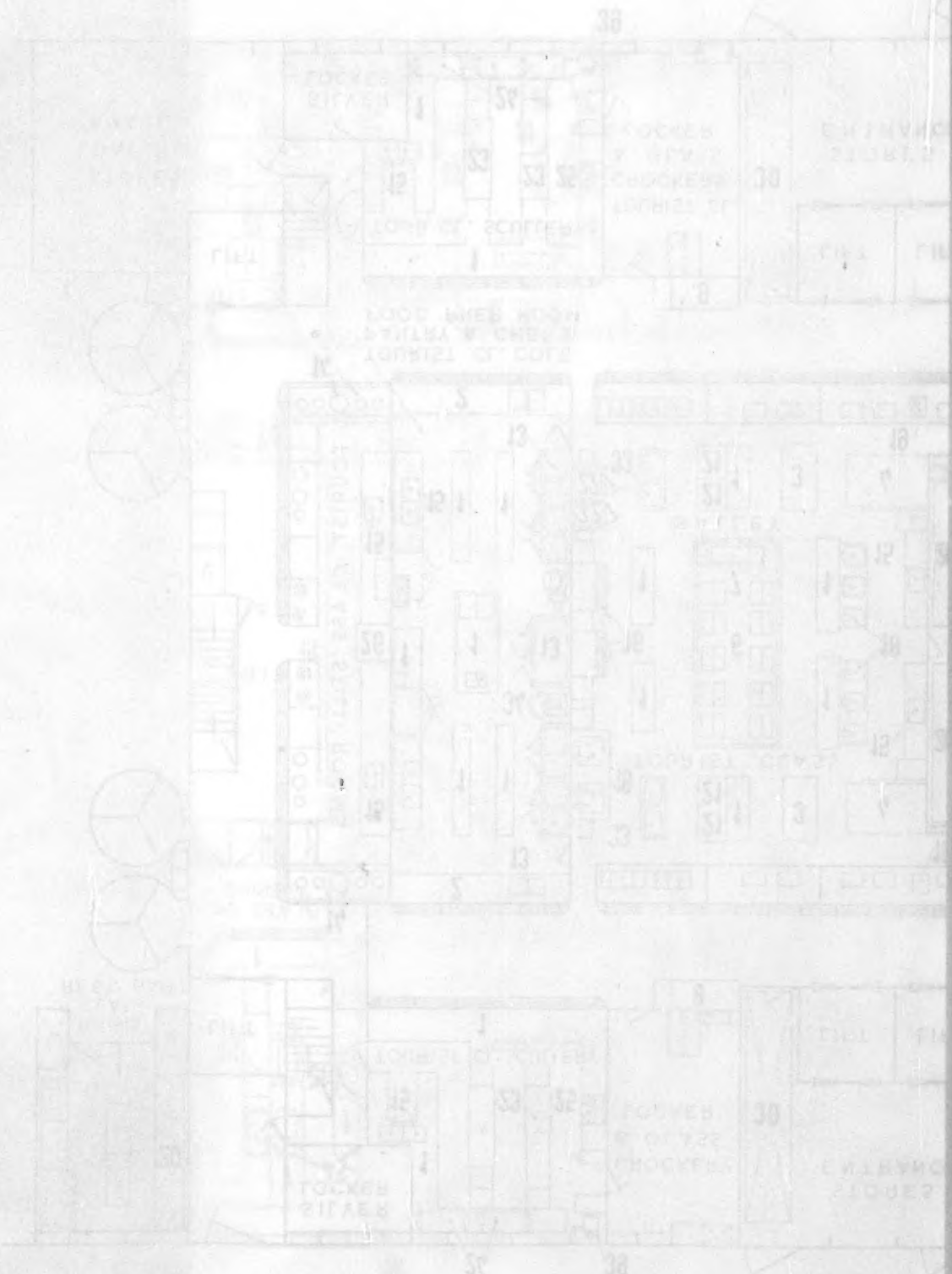
services of the P & O-Orient Lines "Canberra"

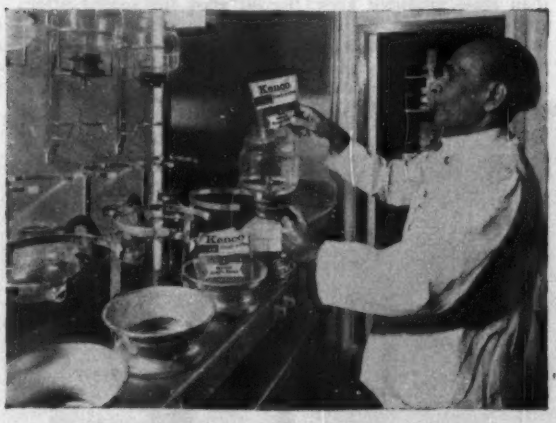


COPING WITH PAPER WORK

To cope with the paper work on board the owners have installed a Gestetner duplicator. John Barnett of Gestetner Supply Department explains a point to Mr N. B. Cox (Senior Assistant Purser) and Miss M. Hughson (Junior Woman Assistant Purser)

The principal sub-contractor for the supply of kitchen equipment was the Carron Company. Carron equipment in the tourist-class galley includes a 10-oven range measuring 15ft 1 in by 10in by 3ft high. Stainless steel drop-down doors to the ovens have spring arrangements to ensure smooth operation, and all rails and pillars are of stainless steel. There are also two Carron electric hot presses, each measuring 38ft by 3 ft 6in by 3ft high, as well as a smaller one; two batteries of twin electric salamanders; two electric fish fryers, six steam-heated stockpots of 20-gallons capacity and two 65-gallons steam-jacketed boiling pans etc. Similar equipment was supplied by the Carron Company for the first-class kitchen area.

Other equipment includes six Pedigree reel ovens manufactured by G. & R. Gilbert Ltd, who also supplied a universal-type moulding machine, a Pedigree dough divider, a Major moulder, a combination roll and bun divider, an electric bench-type model bread slicer, and a specially designed elevating conveyor. Artofex Engineering Works Ltd supplied a dough mixer and a tempering and measuring tank in stainless steel.



IN THE STILL ROOM

7,000 lb of Kenco coffee was taken on board for the "Canberra's" maiden voyage. For the cona-made coffee in the restaurant 4-oz packs are provided to ensure a consistent standard of fresh coffee. Each pack is opened individually, for each brew. No coffee is left lying about in paper bags, to go stale. For bulk brewing, special 5-gallon units are provided

No fewer than 60 items of equipment were supplied by the Hobart Manufacturing Co Ltd, including six fully-automatic and 18 semi-automatic dishwashers, 17 glass washers and five gravity feed slicers. The latest type of Calomax patent boilers were selected to provide a constant supply of boiling water on demand throughout the ship in pantries, for cabin, saloon and deck service, with similar arrangements to serve messroom and galleys. Altogether seven sets of W. M. Still tea brewing machines and three sets of coffee making machines have been installed in various parts of the ship. These have insulated boiler cabinets specially designed for the *Canberra*.

Tableware Design

Geo. L. Ashworth & Bros. Ltd have been the principal suppliers of tableware to the P & O Line. For the new *Canberra* Lady Casson designed an entirely new range of shapes, and a most distinctive decor. The most striking feature about the shapes is their obvious usefulness. They are all made to serve their specific functions fully. The problems of stability, storage, convenience in use, and strength have been considered in relation to the requirements of manufacture and visual appeal. Moreover, because of this careful emphasis on visual attrac-

Lady Casson's crockery design

tion as well as practical requirements the clumsiness typical of so much hotel and shipping crockery has been avoided.

Lady Casson's design is planned to set off the beauty of the shapes and the material, to create a satisfactory *ensemble* when set out with cutlery and glass, and to enchant the eye. We are led into an endless and intricate maze which forms a uniform wide gunmetal grey border extending over the shoulder and verge of the dinner plates. At the edge, and in the centre, there are effective areas of undecorated ware. The proportions have been carefully considered so that fine body and glaze (an attractive creamy white) on the one hand, and abstract decor on the other, mutually set each other off. Lady Casson has modified this arrangement of pattern on hollow ware pieces with calculated effect, using wide bands of pattern on the straight-sided pieces and centre medallions on the circular bowls and dishes—a change of emphasis which is visually satisfying. The children's mugs are printed in three colours, maroon, gosling green and gunmetal grey so that each youthful traveller may have the colour of his or her own choice. The ashtrays again break away from the pattern, and are self-coloured in grey to match the table services.

New Design of Deck Chair

The Cormorant folding chair, designed by Ernest Race, and winner of a Design Centre Award for 1961, is extensively featured on the decks and in the crew's quarters of the *Canberra*. An order for 930 of the chairs was supplied. The Cormorant was designed and developed in 1959 and more than 700 were supplied to the *Oriana*. The chair was designed from the outset with special consideration for the effects on wood

Cormorant folding deck chairs

Tripos chair and footstool

of exposure to sea spray and tropiccal sun. In development tests it was found that timber stains badly at points in contact with metal in marine conditions. To prevent this the brass pins that form the hinges were run in flanged nylon bushes to prevent any direct contact between brass and timber.

The Tripos chair and footstool, also made by Ernest Race Ltd, is also extensively featured in the *Canberra*. Sixty of these chairs and footstools, together with 120 additional sets of loose covers, have been placed in the first-class enclosed decks. The main frames are of square section steel tubing finished with an entirely new fused nylon process. Seats, back-frame and arms are in afrormosia treated with a modern resin finish and the upholstery filler employed is Aeropreen flame-retardant polyether foam. This material not only reduces the risk of fire spreading from accidentally dropped cigarettes and live matches, but is unaffected by extremes of heat and cold and humid climatic conditions. The chair is fitted with a new action allowing it to be simply adjusted to upright or reclining positions and the loose cushions are effectively secured by dowel rods slotted in the fabric and clipped to the underside of the frame. This device prevents the cushions from slipping in use, yet allows them to be rapidly removed.

Central Cleaning System

Passenger ships are sometimes fitted with powerful suction equipment to handle the massive task of boiler cleaning—an essential contribution to fuel efficiency and passenger convenience. The *Canberra* goes a stage further. A central vacuum plant in the boiler room not only cleans the boilers, but operates 5,000ft of hidden pipework, from which more than 100 outlets silently clean the public areas throughout the ship while passengers sleep. The system covers the observation lounge, cinema, cafes, restaurants, hairdressing salons, children's playrooms and companionways in both classes. Ten operators can work simultaneously, each having up to 50ft of hose which can reach all the carpet, upholstery and decorative features in the public rooms and adjoining areas. The dust is sucked directly into a central collector and discharged overboard while the vessel is at sea.

The pipework was built in by Shaw Petrie Ltd during construction and is completely concealed behind walls and ceiling panels. The position of the hose points was carefully worked out by the designers, so as to locate them where they are both practical and unobtrusive, a special consideration which called for some skilful work by the engineers. The "vacuumation" plant was made by the British Vacuum Cleaner & Engineering Co Ltd, whose founder H. Cecil Booth invented the world's first vacuum cleaner 60 years ago.

Cleaning with the BVC Vacuumation system

Custom-made Glass

Too many architects and interior designers ignore glass design when they are planning hotels, ships, restaurants and so on. They rely on standardised machine-made glass that can be seen anywhere and everywhere. But they often go to great trouble to have carpets, fabrics and furniture made to specific individual designs. "Yet handmade glass", says Ronald Stennett-Willson, joint managing director of J. Wuidart & Co Ltd, "shaped in an original design, need cost little more than mass produced glass. Special glass for special places is still the exception, not the rule." Among recent exceptions are designs by Mr Stennett-Willson for the *Canberra*, for which he has designed wine glasses, tumblers, oil and vinegar bottles, celery holders, vases (these won a Design Centre Award in 1960) and ashtrays.

Pickle jar and oil and vinegar set supplied by J. Wuidart & Co Ltd for the "Canberra"

Production of Cherry Heering

NEW CHERRY ORCHARD DISTILLERY AT DALBY

WHEN Peter F. Heering started to sell his cherry brandy in his cellar shop in Copenhagen in 1818, he hardly realised that Cherry Heering would later be sold all over the world and become known in every country. When he moved into the old mansion at Christianshavn in 1838 he probably did not realise either that in 1961 Cherry Heering would be produced in two distilleries, both working at their full capacity all year round to satisfy the ever increasing demand.

Son has succeeded father and the fifth generation is now taking an active part in the management of the firm. In 1914 and 1927 the old mansion in Copenhagen—erected in 1785—was expanded and new additions were added in such a way that you can hardly notice the difference between old and new when you visit the distillery.

Due to the enormous rise in sales after the war, it soon became evident that the old property in Copenhagen would prove insufficient for production and offices, and in 1947 the first step was taken to erect the Dalby Orchard Distillery, which was finally completed this summer. Already in 1944 the Heerings had acquired the property near the village of Dalby, 35 miles south of Copenhagen, in the heart of the Danish cherry district. At that time, it was solely a question of establishing a new cherry orchard as part of the firm's endeavours to produce more cherries. On this property the first production building was erected in 1947, and since then a rapid development has taken place, so that today a total of eight large production buildings and a completely new bottling plant constitute the Heering Orchard Distillery.

30,000 Bottles a Day

The cherry trees of the orchard, the undulating countryside, the green lawns and the brilliantly coloured flowers bind the characteristic buildings together, and make them part of the south-east Zealand landscape. Behind the friendly white walls and in the deep cellars the large oak casks, the impressing white tanks and a rational bottling and dispatching system are hidden. A daily bottling capacity of 30,000 bottles, an annual turnover of about 4,000,000 bottles and a storage capacity corresponding to about three to four years' consumption (12-15 million bottles) are figures which illustrate the development which has taken place.

In their efforts to procure sufficient quantities of cherries, Peter F. Heering have themselves since the early 1940s planted about 150,000 cherry trees—partly in their own orchards, partly in orchards with which a co-operation on the basis of long-term contracts has been established. It goes without saying that it is a question of considerable quantities which are contributory to the production of Peter F. Heering, and in good harvest years the company approaches close to 1,000 tons of cherries.

Some of the picturesque carved oak casks in the new buildings at Dalby

The total area of the company's orchard at Dalby now comprises about 50 acres and the orchard distillery is surrounded by 10,000 cherry trees. A special problem is the fight against starlings which in the worst years have destroyed about one-fifth of the cherry crop. Up to a few years ago it seemed that most of the efforts to keep the starlings away were not proving successful, but then, in close cooperation with scientists, it was discovered that the starling used a special shriek, if in danger, to warn the other starlings in the flock. Consequently, a starling was caught, such a shriek was put on tape and today the cherry orchards are covered by a system of loudspeakers which will send out the warning shrieks of a starling, as soon as a flock of starlings is approaching. So far this system has proved very efficient, and the starling problem has been nearly completely eliminated.

Quality of Cherries

During the season about 150 pickers are employed in the firm's own orchards and the harvest usually lasts for about ten days. One of the explanations for the remarkable quality of the cherries employed in Cherry Heering, is the fact that they ripen very late due to the rather

An aerial view of the Cherry Heering distillery and orchards at Dalby

Mr Peter Heering (left) with Mr R. W. Nicolson, chairman of H. Parrot & Co (London) Ltd, distributors of Cherry Heering products. Behind them are their respective sons, Peter and Paul

cool climate in Denmark—therefore they have a longer time to accumulate the bitter-sweet flavour so essential for the product.

With the addition of the new product Kahlua, the Dalby distillery has become a still more important part of the firm and at present this Mexican coffee liqueur is being introduced all over Europe. Sales efforts will gradually be expanded to the rest of the world where the firm of Peter F. Heering holds the sole rights with the exception of Mexico, the United States and Canada.

The delicious flavour of coffee is now blending itself with the old accustomed smell of cherries, and everybody is taking the greatest interest in the production of Kahlua, which is based entirely upon imported Mexican coffee beans, and the old original formula.

But the liqueurs are not the only interests of the Heerings. The Cherry Heering line is showing the Danish flag all over the world, and the *Christel Heering* and *Mille Heering*, with their Cherry Heering-red hulls, represent a revival of the old family tradition, best expressed in the family crest by the words 'Trade and Navigation".

Dunlopillo Export Department has received an order for over 1,100 mattresses and long-length seating to be fitted in the new 20,000-grt Portuguese liner *Principe Perfeito*, flagship of the Cia. Nacional De Navegacao, Lisbon, and built by Swan Hunter & Wigham Richardson, Newcastle upon Tyne. This is only one of several recent export shipping orders obtained by Dunlopillo; others include mattresses and pillows for the *Almeirim* and *Ambrizete*, both Portuguese vessels, and also mattresses and bolsters for ten ships under construction for the Black Star Line.

The Riverdale (U.K.) & Company division of United Merchants & Manufacturers (U.K.) Ltd have appointed Mr A. H. Steabben to head their newly-formed contracts department. In his new appointment Mr Steabben will be responsible for the marketing of all the Riverdale fabrics in the contracts field. These fabrics include the "Uniglass" range of 100 per cent glass fibre curtaining and ready-to-hang curtains which are now available in a wide range of designs and colours.

HERE AND THERE

The Speciality Department of T. Wall & Sons (Ice Cream) Ltd is now producing a large range of special flavours of Dairy Ice Cream and Sorbet, in half-gallon cans. The Dairy Ice Cream flavours available are Pistachio, Maraschino Cherry, Peach, Pineapple Chunk, Ginger, Praline, Tangerine and Tutti Frutti, as well as any liqueur flavour to order. Sorbets are available in Lemon (made with fresh lemons), Lime, Orange or Melon and Ginger.

Timber and fittings from the Cunard liner *Britannic*, now being broken up, have been used to build an up-to-date milk bar, appropriately named "Britannic Cabin", at Dunfermline. A mirror which came out of a state room in the *Britannic* covers almost the whole of one wall.

A pioneer force of 148,800 fruit-filled turnovers which have travelled on the sea route from Copenhagen to Los Angeles have opened up new opportunities in the U.S.A. for the highly perishable delicacies of Europe. The 20 tons of Danish pastries sailed in the deep-freeze holds of the Swedish motorship *Los Angeles* to the order of local baker Charles M. Mathewson. After bringing in some pilot pastries last year, there was such a demand from customers, most of whom had never sampled Danish cakes before, that he intends to supply the whole Southern California area with authentic European bakery products.

Special recessed dispensers for Kleenex tissues are now available for hotel use. Method of fitting a dispenser is to countersink it so that the highly polished front face is flush with the wall. A supply of Kleenex in bedrooms and bathrooms is a hallmark of service guests readily appreciate. The tissues have many uses, including blotting lipstick, carrying out repairs to make-up, wiping razors and blades after use. For managements provision of this service means lower laundry bills and less damage to textile towels.

When passengers were served recently on the outward-bound American Export Lines' *Constitution*, they were able to order fresh asparagus and strawberries picked the day before in California or Dungeness crabs plucked fresh from the Pacific. Cornelius Crimmins, manager of services for the shipping company, said the line was participating with Trans World Airlines in food delivery service the airline has developed.

Seen at an evening meeting on "Quick-Freezemanship" held by the London branch of the Hotel & Catering Institute are (left to right) Mr K. J. B. Webb, marketing director of Birds Eye and Smethursts, Mr R. W. Reading, catering supervisor for Royal Mail Lines, Mr N. S. P. Rowe, purchasing office of the Port Line and Mr Alan Oakley, of Oakley & Watling Ltd

Piped sugar flowers for table decoration are the subject of a coloured brochure produced by Ch. Goldrei, Foucard & Son Ltd, 63-69 Llewellyn Street, London SE16

The Italian Hoover Company has obtained the exclusive rights to supply electric cleaners to the new Italian liner *Leonardo da Vinci*. A total of some 20 British-made Hoover cleaners have so far been supplied to the ship.

Accelerated Freeze Drying of Food

OPENING OF NEW FOOD PLANT IN IRELAND

THE opening of the Irish Sugar Company's accelerated freeze drying plant at Mallow, Eire, represents the first full-scale commercial venture to produce and market a wide variety of foods processed by this entirely new preservation technique. This £250,000 factory has been built by the South Marston Works of Vickers-Armstrongs Ltd, whose engineers have developed the commercial application of the system, based on many years of research conducted by the British Ministry of Agriculture's Research Centre at Aberdeen.

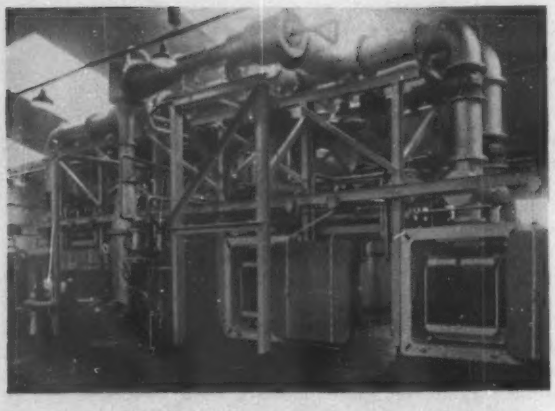
Almost any food, cooked or uncooked, animal or vegetable, can be preserved by this new process and stays fresh for years without the need for bottles, cans or refrigerators. Because the food is dried in a high vacuum, the vapour which is released takes nothing away with it, unlike old-fashioned dehydration methods. The finished food retains its fresh appearance, and colours remain natural without the need for chemical colouring agents. The food can be reconstituted almost immediately by immersion in water, and the result is virtually indistinguishable, when prepared for the table, from fresh food.

A decisive factor in the acceptability of A.F.D. food will undoubtedly be its lack of weight, often less than one-sixth of the original, and its ease of storage. Alternative methods of food preservation suffer from inherent disadvantages which are marked when long-distance transport or indefinite storage periods are involved. The deep freeze method is further complicated by the need for refrigerating equipment throughout the whole of the distributing and selling cycle. Accelerated Freeze Drying, with its uncomplicated transport and storage requirements, bears none of these expensive disadvantages.

Commercial Application of Freeze Drying

Dehydration has long been used as a means of preserving food, but it is in more recent times that the process of freeze-drying has become recognised as the most attractive method of dehydrating food. In contrast with other dehydrated foods which require long periods of soaking in water to reconstitute them, freeze dried foods reconstitute rapidly in a few minutes to a condition closely resembling fresh food. Some foods are freeze dried raw in the form of large instantly recognisable pieces, e.g., beef and fish steaks, or, for convenience, are pre-cooked so that they can be consumed immediately after reconstitution. It is possible to pack a complete meal of freeze-dried pre-cooked foods.

Although freeze dried foods have these distinct advantages over hot air and vacuum dried foods, the high capital and running costs of freeze drying equipment and the long drying times required using existing techniques, caused this method of dehydration to be regarded as commercially uneconomic. However, recently developed techniques that increase the rate of transfer of heat of sublimation to the food have reduced drying times to an acceptable level, and, as a result, the possible commercial application of freeze drying to the preservation of food has aroused considerable interest in the food industry.



General view of the Vickers-Armstrongs freeze drying food processing installation

Drying by Sublimation

Preservation by dehydration ideally requires the complete removal of water in the form of vapour, without otherwise affecting the food either structurally or chemically. Vapour can be removed either by evaporation from the liquid phase (water) or by sublimation from the solid phase (ice).

In hot air or vacuum drying, water containing soluble salts moves continuously to the food surface where it evaporates, leaving a residue of salts on the surface. This continuous migration of water and salts causes extensive protein denaturation, shrinkage due to surface tension and the formation of a hard skin on the surface which impedes further drying and subsequent reconstitution. It is evident that drying by evaporation does not meet the ideal requirement.

If the food is frozen and then dried by sublimation, i.e., by converting the ice in the food directly to water vapour without passing through the liquid phase, then the ideal requirement is almost fully realised. The reason for this is that once the food is frozen it is already virtually dry since no liquid phase is present, and if the ice is then removed by sublimation from the solid phase, the structure and the spatial distribution of salts and other components in the dried food are the same as in the original frozen food. The effects of migration are eliminated because vapour cannot carry salts away from the ice surface nor can it produce shrinkage of the tissues. The initial freezing and subsequent sublimation processes are carried out with the minimum of structural and heat damage to the food and its quality after reconstitution is almost identical to that of the fresh food.

Although ice can sublime at atmospheric pressure under suitable conditions, a much higher rate of sublimation is achieved by processing the frozen food in a vacuum cabinet continuously evacuated to a total absolute pressure less than the vapour pressure of the ice in the food, supplying adequate latent heat of sublimation to the ice and providing an efficient means of condensing or extracting the liberated vapour. These are the essential features of a freeze drying system.

Foods Suitable for Accelerated Freeze Drying

(1) *Animal and fish products*

Beef	Raw steaks, raw minced, sliced cooked, raw cubes.
Chicken	Cooked flaked.
Pork	Raw steaks, raw chops, minced cooked, chunks cooked.
Veal	Minced cooked.
Ham	Minced cooked.
Egg	Raw—yolk & white beaten together. Raw—yolk & white separated.
Cod	Raw steaks with bone, or boneless; flaked cooked.
Halibut	Raw steaks.
Salmon	Raw steaks.
Herring Roe	Raw.
Scampi	Raw; poached.

(2) *Vegetables*

Potatoes	Scalded, chipped, sliced.
Carrots	Scalded, sliced, diced, stripped.
Cabbage	Scalded, shredded.
Peas	Scalded.
Beans—broad	Scalded.
Beans—green	Scalded, crosscut.
Cauliflower	Scalded.
Beetroot	Cooked, sliced.
Asparagus	Scalded.
Onions	Raw, sliced.
Leeks	Raw, chopped.
Mushrooms	Raw.
Mixed Vegetables	Raw.

(3) *Fruit*

Apples	Raw, diced or sliced.
Apricots	Raw, halved.
Bananas	Raw, sliced.
Black Currants	Raw, abraded after pre-freezing.
Greengages	Raw, halved.
Plums	Raw, halved.
Raspberries	Raw, whole.
Strawberries	Raw, husked and halved.
Fruit Juices	Pre-frozen slabs.
Fruit Pulps	Pre-frozen slabs.

(4) *Cooked Dishes*

Meat & Vegetable Stew Spaghetti & Tomato Sauce Sago Pudding Rice Pudding	All frozen and cut into slabs before drying.

ELECTRONIC DEFROSTING

AN entirely new electronic defrosting installation—the first of its kind in the world—has been designed and built by the Process Heating Divison of Pye Ltd, Cambridge, and installed at the Grimsby fish factory of the Ross trawler-fishing and frozen food group. With the new equipment slabs of deep-frozen fish at a temperature of down to minus 30 deg F pass, on a conveyor belt, through a tunnel-oven which contains a radio-frequency field. This field causes molecular agitation in the fish, melting it right through so quickly that, for example, a ton can be brought from its cold storage temperature to melting point in one hour. Deep-frozen fish which until now has had to be thawed by warm air, warm water, or other means for at least 24 hours and in some cases several days, can now be unfrozen ready for use in about 15 minutes.

The equipment is the result of several years' work at the Torry Research Station of the Department of Scientific & Industrial Research, and intense further development by the Pye Process Heating Division in close cooperation with the Ross Group.

Vitafoam Ltd, who have supplied furnishings to the *Windsor Castle* and other British ships, announce that their contracts division has established a London office at their Hanover Square showroom, 12a St George Street, W1. Mr Peter V. Crofts is in charge. Vitafoam produce latex foam mattresses with matching divans as well as pillows in three sizes. Vitafoam are now fulfilling a contract for 67,000 special mattresses for the Army and the RAF, the largest single mattress order ever placed in Great Britain. Vitesta Ltd, Vitafoam's glass fibre production service, can be used to make chairs and other glass fibre mouldings to special designs for contract work.

SOME NEW LINES

Rechargeable Battery

A new idea for users of torches and similar battery-powered instruments is being marketed. It is a small, cartridge-type battery which is capable of being recharged time and time again. Called the Chilton Permabeam, it eliminates the use of conventional dry-cell batteries. The Permabeam—a single, compact unit about 4¾in long and 1¼in in diameter—is the same size as two standard U2 batteries. Basically it is a blue-coloured durable plastic case which contains a series of rechargeable nickel cadmium button-type cells, being equipped with normal battery contacts and two-pin plug for recharging. Primary advantage of the Permabeam is its ability to be recharged time and time again. It is simply plugged into an AC mains socket (110-240 v) and left to recharge overnight or during some convenient off-duty period. It has a guaranteed long life. It will not deteriorate or corrode; stores indefinitely; and is completely shockproof. Other advantages include negligible cost of recharge, simple recharging and service. The standard model is 2.5 volts, priced 29s 6d. Other models are rated at 3.5, 5 and 6 volts.

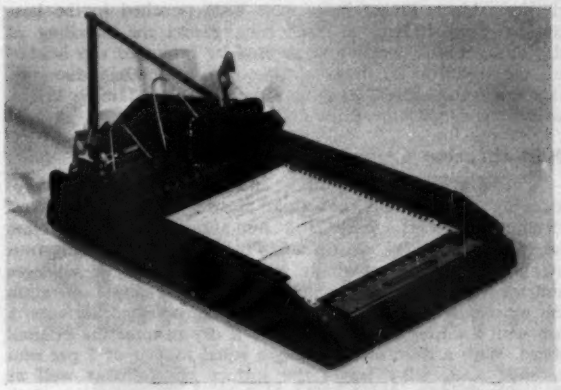
Power Tools

A new blade for jig saws, which cuts sideways along the base of a wall, has been introduced by Stanley Works (G.B.) Ltd., Rutland Road, Sheffield 3. This blade, for use with the Stanley Sabre saw, cuts parallel to and only ⅝in away from the base of a wall. In addition, by adjusting the base of the

saw and fitting a special flush cutting blade, a cut right up to a wall can be obtained. This means that such jobs as removing a section of floorboard, using only the Sabre saw, can be easily tackled. The Sabre saw can also do the work of a rip or crosscut saw, band saw, keyhole saw, hack and jig saw and can also be inverted in a vice and used as a fret saw because of its parallel sides. Other features of this saw are the built-in blower which keeps the working area clear of chips and the wide selection of blades available for cutting anything from wood to mild steel. It is light and comfortable to handle and blade changing is a simple process, as only one screw, which holds the blade firmly in place, has to be removed. Saw prices are £25 (heavy duty) and £29 (extra heavy duty). The new side-cutting blade and flush cutting blade cost 9s 8d each.

Spirit Duplicator

The new RENA Model "A" is a flatbed duplicator with a new and novel feature. It is provided with 35 retractable studs 5/32in in diameter running vertically along each side of the bed of the machine on to which a master with corresponding punched holes is placed for reproduction. After taking the required number of copies from a master of up to foolscap size, the master thus punched can be filed in a multi-ring binder and preserved for future use. Subsequently, various strips from one or more masters bearing one or more lines of the required information and/or data can be taken and assembled together on this machine by simply slipping them



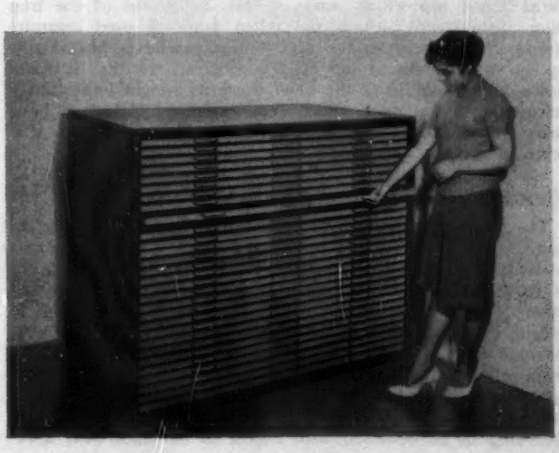
on to the studs in the desired order for reproduction. This makes the RENA Model "A" invaluable for various applications requiring occasional recasting, addition, deletion and/or alteration of the master to be copied. No stencils, no ink and no absorbent papers are required. Copies are dry and absolutely non-smudgy. Up to 300 copies may be obtained from one master. Copies can be produced in one to seven colours in one operation. The price of this machine is £75 and it is being distributed throughout the United Kingdom and Northern Ireland by E. G. Solomon, 44 Worship Street, London EC2.

Adhesive

A new adhesive, Evo-Stik 'Impact' Adhesive 633, consisting of a one-part rubber/resin formula, has been developed by the Industrial Adhesives Division of Evode Ltd, Stafford, to provide a strong resilient bond when joining polyurethane or polyether foam to materials such as fabric, wood, metal etc, without affecting the microcellular structure of the foam. The adhesive provides a strong, efficient bond for microcellular foam to itself without causing any hardening effect at the joint. This property is particularly useful to the soft upholstery industry and other manufacturers using foam plastics as soft padding material. It is water and oil proof, and resistant to high temperatures. One gallon is sufficient to bond about 15 square yards of foam, allowing to coat both surfaces. The price is 29s 3d a gallon in quantity.

Drawings Storage Cabinet

Specially designed to store the large-size antiquarian drawing 'in the flat,' a 44-in high sheet metal cabinet holding 30 one-inch shallow trays has been produced by James H. Randall & Son Ltd, Paddington Green Works, London W2. With each tray capable of filing 50 drawings, these steel trays, with radiused handles, slide freely on non-mechanical runners. The base of the trays is swaged to give additional strength. The rear-most portion is cased-in 'envelope-pattern,' to protect the contents and prevent loss of drawings down the back



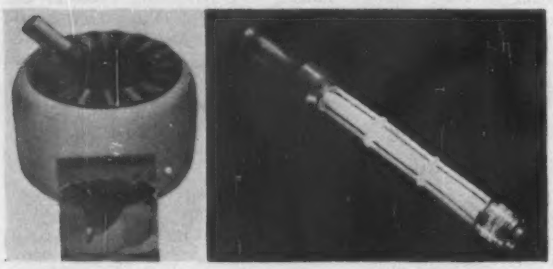
of the cabinet. Finger holes have been punched in the base of the front corners of each tray, easing the handling of drawings. Speedy location is ensured by reference slip holders on the front of the trays. Attractively finished in duo-grey, this new metal cabinet takes up a floor space of 55in × 35¾in, with a height of 44in. Price £146 13s 7d ex works.

Non-abrasive Cleaning Cream

A remarkable product, Silky, now available generally, provides an effective and economical answer to many shipboard cleaning problems. Silky is a non-abrasive cleaning cream which is free from caustic acid, bleach or other dangerous ingredients. Applied sparingly with a damp cloth or squeegee and wiped off with another, it removes in this simple operation the most stubborn grime and soiling. On polished surfaces, a rub with a duster when the surface is dry restores the original sheen. With a disinfectant strength equal to that of 7 per cent carbolic acid, Silky leaves the surface clinically as well as visually clean. As only sufficient water to dampen the cloth is required, there is no mess. For the same reason, Silky-cleaning is safe near electrical wiring or appliances. It may be used on all exterior or interior painted surfaces, on varnish, cellulose, chromium, stainless steel, enamel, glass, Perspex (it has useful anti-static properties), tiles, terrazzo, marble, vitrolite, mosaic, rubberised floors, linoleum etc. Extremely economical in use, a gallon of Silky is sufficient to clean down over 2,000 square yards of paintwork. The manufacturers are Silky & Co, Morley, Leeds. The standard 3-gallon pack costs £4 18s 6d, with reductions for quantity.

Ash Tray

A certain fire-deterrent is the G.T.E. Tipper Ash Bowl, marketed by General Trade Equipment Ltd, 82/90 Seymour Place, London W1. This incorporates what is a unique fire-safety device—the safety tipper, an attachment which disposes of cigarette ends by tipping them, as soon as they burn down to the thermostatic coil spring, into the centre of its capacious bowl, where a miniature trap door opens and immediately



Tipper ash bowl (left) and flameproof inspection lamp

seals them inside. Available in an attractive range of colours, the smooth easy-to-clean china bowl case has removable black china fluted top which, while in use, by means of the trap door, hygienically covers the fallen ash and used cigarette stumps. The tipper on to which the cigarette is placed tilts up as soon as the stump has burnt down, so that it slides down to the middle of the bowl. Here its weight immediately releases the trap door which receives it inside and at once seals therein both the fumes and the still-burning ash. The price of the ash bowl is 15s.

Flameproof Inspection Lamp

The flameproof hand inspection lamp (illustrated) manufactured by J. M. Hargreave of West Molesey achieves a major advance in flameproof lighting. It is the only inspection lamp of its kind to obtain a "Buxton" certificate for use in atmospheres of Groups II and IIIa gases. Its overall length is 18¾in, diameter 2½in, and it weighs less than 3 lb. Thus with the high light output from its 8-watts fluorescent tube and by virtue of its compactness it is suitable as a background safety light and also as an unobtrusive on-the-spot working light. The accompanying ballast unit can be also flameproof or not, according to its situation with regard to the hazardous area.

New Kraft Products

Kraft Foods have introduced New Kraft Velveeta Cheese Food in a new, convenient 6-oz size, now available nationally. "Velveeta" was first sold in Britain in 1929, and immediately established itself as a household word. The new Kraft Velveeta Cheese Food has the full flavour of the prewar product —plus rich health-giving vitamins and proteins. In just 2 ounces of this nourishing cheese food there is more calcium, milk protein and vitamin 'A' than in a large 8-oz glass of milk. The new product is attractively boxed and has an inner wrap of golden foil.

Kraft Foods are now importing from the United States, for test marketing in selected areas of the United Kingdom, Kraft "P.C.'s" (portion controlled) individual portions of Kraft American tomato ketchup and Kraft American Miracle Whip salad dressing. Each portion is one-half ounce in weight, individually packed in an unbreakable, hermetically-sealed polythene container. A red-line "easy-to-open" top eliminates all possibility of messy or inconvenient handling by the consumer. The obvious benefits of controlled portioning and costing have made Kraft "P.C.'s" highly popular with caterers and institutions in America, Australia and in test areas of Britain. P.C. packs are convenient and hygienic in use, no preparation is involved, and an exact half-ounce serving can be placed sealed on plate or tray without wastage of time or preparation labour costs. The caterer, too, knows exactly the number of servings available or served at any one time and food costs can be measured to a fraction of a penny. Kraft American tomato ketchup and American Miracle Whip salad dressing is available in 20 × ½-oz "P.C.'s" to a sealed cardboard tray, ten trays to a cardboard outer, giving a count of 200 individual portions per outer. Kraft recommend refrigeration for these products, which have a store life of 6 to 8 weeks.

New Plastic Pourer Sprinkler

The Plastics Group of The Metal Box Company has produced a new pourer/sprinkler made of polythene suitable for bottles of vinegar and other products. It will pour efficiently

Kraft "portion control" packs

from a steady flow to a drop in four directions and will not drip. The pourer/sprinkler fits neatly over a rim on the specially designed neck of the bottle. A four-leaf clover shaped surround to four cruciform slots is flanged outward, giving a surface which presses firmly against the top of the inside of the polystyrene screw cap, so making an efficient seal without the use of a wad.

New Batchelors Packs

Batchelors have produced a catering pack from their already well-known soup mixes that makes exactly one gallon of soup. All a chef has to do is to use the contents of the pack with a gallon of boiling water and he has enough for exactly 26 six-ounce servings. The advantages of these handy packs are many. The Catering Division has nine popular varieties to offer with others on the way. The packs do away with weighing-out or guesswork; they provide a year-round choice of popular soups to serve—even when ingredients are out of season; and they offer a wide choice on the menu card. With these packs the catering manager's problem of costing and ordering is simplified and his storage problems lessened.

Recently, two more products were added to the range—"Surprise" Peas, and "Quick" Potato Flake. Dehydration is rapidly playing a more important part in catering and these two products—the result of years of research—are being received with enthusiasm in all branches of the catering trade. The following are some suggested recipes:—

Cheese and Potato Souffle

1½-2 lb onions, finely chopped
12 oz margarine
2 lb Batchelors Potato Flake
6 pints water
2 pints cold milk
1 oz salt
24 eggs, yolks and whites separated
2½ lb cheese, finely grated
¼ oz mustard

1. Fry onions in margarine until soft, but not brown.
2. Add water, bring to the boil, add milk and salt. Pour liquid into mixer, add flake and beat at low speed for 10 seconds until reconstituted.
3. Stir in yolks, cheese, and mustard. Finally fold in stiffly beaten egg whites.
4. Pour into greased trays and bake in moderately hot oven (Reg. 6 or 400 deg F) for 30-40 minutes.

Number of portions: 50.

Potato and Cheese Balls

2 lb Batchelors Potato Flake
4 pints water
1½ pints cold milk
1½ oz margarine
1 oz salt
4 lb cheese
Pepper
Eggs for coating
Browned breadcrumbs

1. Make up flake in normal way using the above quantities of liquid. Add the cheese and seasonings and mix thoroughly.
2. Allow to cool slightly. Divide the mixture equally into 96 portions.
3. Form into balls and coat with egg and breadcrumbs, reshape if necessary.
4. Fry in deep fat for about 2 minutes until golden brown at approximately 340 deg F.

Number of portions: 96 × 2 oz Potato and Cheese Balls.

Irish Eggs

2 lb Batchelors Potato Flake
4 pints water
1½ pints cold milk
1 oz salt
1½ oz margarine
Pepper
Chopped parsley
64 hard boiled eggs
Browned bread crumbs, Beaten eggs } for coating

1. Make up the potato in the normal way using the above quantities of liquid. Stir in parsley and allow mixture to cool slightly.
2. Cover each egg with potato (allowing approximately 3 oz per egg), and reform to the shape of the egg. Coat with egg and breadcrumbs twice and reshape if necessary.
3. Fry eggs for about 2 minutes in deep fat (approximately 340 deg F). Drain and serve hot or cold.

Number of portions: 64.

'Silent Salesman' Dispenser

Rothmans of Pall Mall have now developed, in cooperation with the Display & Marketing Co Ltd, an improved dealer aid—called the 'Silent Salesman.' The Silent Salesman is a specially designed column to dispense cigarettes quickly and easily. It has been in use in the Commonwealth for some years where it has been found to be most successful. The transparent sides enable the trader, or barman, to see at a glance the state of his stock. Each column when full holds at least 24 packets of 20 cigarettes. There are individual Silent Salesmen for Rothmans King Size, Consulate and Peter Stuyvesant. The vertical design of the column enables it to be fixed to walls or shelves and this saves space. As the cigarettes are served from the bottom of the column in which they are stacked, lying horizontally, they are sold in the same order they are stocked, ensuring freshness to the smoker—"first in, first out." 50,000 of the Silent Salesman made of metal are already in use and the new plastic variety is now being manufactured in large quantities.

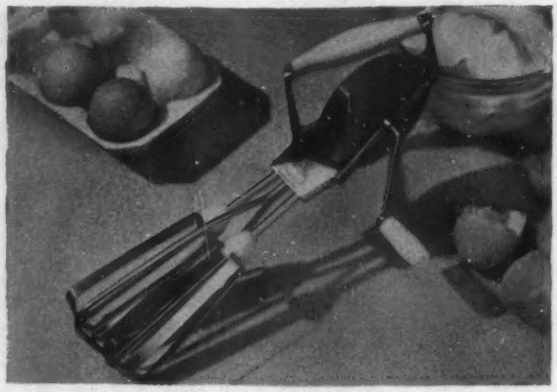
Disposable Wipers

Kimwipes, the Kimberly-Clark disposable wipers, are now available in roll form. The new Kimwipe Roll, which is made of two-ply soft, strong cellulose, is specially designed for heavier cleaning jobs involving oils, grease, dirt and solvents. The roll is made up of 100 20in × 18in sheets. Perforations enable each sheet to be torn off evenly. Nine Kimwipe Rolls are packed to a case, price per case varying from 71s to 63s depending on the quantity ordered.

Unusual Preserves

An exclusive range of unusual preserves is to be introduced by Floris Bakeries Ltd. The first six varieties in the range include three made from wild fruits—Mountain Strawberry (made from fruit grown in the Carpathian Mountains), Morello Cherry (from South Eastern Europe), Forest Blueberry (from the Northern forests of Europe)—and the very rare and fragrant Rose Petal preserve. To complete the half dozen there is a ginger preserve and a special bitter orange preserve for the breakfast table.

The G.7.B staple remover has recently been introduced together with a range of over 800 precision built stapling machines by Bostitch London Ltd. Designed for speed in operation and easy and convenient use, the neat, finely balanced remover is strongly built for a lifetime's use. The Bostitch G.7.B. permits rapid opening of all types of corrugated and solid fibre cartons, boxes and packing cases without damaging or weakening the container—which is available for immediate re-use



Prestige Egg Beater

For many years egg beaters have been among the Prestige Group's best-known and best-selling products. Now comes a smart addition to the range—the "Prestige" Royal—incorporating new ideas in styling, colour combination and ease of cleaning. The sturdy die-cast frame has a heavy, gleaming chromium-plating. The eight extra-deep beating wings are in stainless steel—extremely simple to keep clean. The offset handle is moulded to give a firm grip, with plenty of knuckle room. A markedly contemporary touch is the enclosed drive which protects the working parts and gives a quiet action.

The Swanson Line

Campbell's Soups Ltd, of King's Lynn, plan to introduce a new line of frozen prepared foods in England. The line will include, at the outset, frozen prepared dinners, meat pies and dessert pies. They will be sold under the Swanson label. Manuels Frosted Foods Ltd have been appointed sole distributors of Swanson products for the United Kingdom and will also distribute a line of Campbell's Frozen Soups. The Swanson line is well known in the United States where Swanson pioneered mass distribution of the frozen prepared dinner in 1952. Since then the sale of frozen dinners in the United States has reached the level of hundreds of millions of dinners annually. The Swanson line will include three dinners—Chicken, Ham, and Macaroni and Cheese. The meat pies to be included are Beef and Turkey; dessert pies will include Cherry, Peach, and Coconut Custard. Campbell's Frozen Soups will include Green Pea with Ham, Cream of Shrimp, and Oyster Stew.

Pipe Thread Sealing Tape

A recent addition to the range of P.T.F.E. (Polytetrafluoroethylene) products manufactured by Turner Brothers Asbestos Co Ltd, Rochdale, is pipe thread sealing tape. This unsintered tape is supplied as a continuous ribbon ½in wide on handy metal dispensers in lengths of 20ft, 30ft or 40ft, and is used for sealing threaded pipe joints at a rate never possible with previous materials. Breaking of the connection is easily accomplished, even after a long period of time. The plasticity of the material ensures that it conforms exactly to the contours of the thread, resulting in a perfect seal against pressures of many thousands of lb/sq in. It is also unaffected by temperatures ranging from −100 deg C to +300 deg C, is chemically inert and will not cause contamination of the liquid being handled. Turners P.T.F.E. tape is impervious to water, steam and most corrosive liquids and gases.

Carpet and Upholstery Shampoo

A new carpet and upholstery shampoo—Hifoam—has been marketed by Reddish Detergents Ltd, Cheadle, Cheshire. The product has been specially formulated to give high foaming for surface cleaning without undue wetting. There is minimum penetration through to the back of the fabric or carpet, obviating the rotting of material and floor boards. It has a fast drying time and is particularly useful for upholstery cleaning where quick use of seating is necessary, such as in the transport and catering industries. Hifoam is marketed in one-gallon and five-gallon quantities.

CATERING EQUIPMENT

Stainless Steel Buffet Dish

The latest product of S. J. & E. Fellows Ltd, Vulcan Works, Wolverhampton, is the Club series of stainless steel buffet dishes. Four useful sizes are available, the Varsity (12 × 8 × 2in), Berkeley (13 × 9 × 1¾in), Cavendish (14 × 9 × 2¼in) and Marlborough (16 × 11 × 2in), ranging in price from 16s 9d to 28s 6d. These attractive dishes only require hot soapy water to clean and maintain their gleaming appearance.

Glass "Crockery"

Glass plates, cups and saucers, long popular in schools and industrial canteens, are now invading the hospitals. Hospital buyers have found it particularly suitable since the introduction of coloured rims. Three colours are offered, red, blue and green, and they are an aid to quick identification, ward by ward. Badging has also been introduced recently and this has proved popular. Jobling opalware is the grade of heat resisting glass produced by the makers of Pyrex for institutional catering. It has the heat-resisting qualities traditionally associated with Pyrex but has greater strength to protect it against rough usage. One large group of hospitals reported that over a four-monthly period 1,373 pieces of plain white crockery were broken, compared with only 302 pieces of opalware. In one ward, over a six-months period, 93 pieces of white earthenware were broken compared with five pieces of opalware. A multiple store has reported that since it introduced opalware into its chain of restaurants and cafeterias some years ago, replacement costs have been reduced by more than 80 per cent. This additional strength is not achieved at the expense of lightness; in many cases opalware cups are the same weight as the earthenware cups previously used, and in some cases lighter. Not only is the basic material, opal glass, stronger than earthenware, but the handle is moulded as part of the glass cup, not stuck on so that it may all too easily be broken off. Another advantage, in any type of catering, is that glass is naturally hygienic, presenting a hard, shiny surface that is easy to wash. Because it is glass it is non-porous right through and does not depend for this quality on a surface glaze which may craze or chip off to provide a natural refuge for bacteria.

Rotel Super Juicer

A high-precision Swiss-made fruit and vegetable juice extractor which also forms the basis for a complete range of kitchen appliances, is now available in Britain. Known as the Rotel Super Juicer, this extracts juices instantaneously from both hard and soft fruits and vegetables, either separately or in blended form, without losing any of the valuable properties contained in skin and peel. It consists of a lightweight motor base which does not come into contact with foodstuffs and, therefore, requires no cleaning, to which is attached by two simple clips, the extractor unit (or other accessories). None of the metal parts are made of aluminium and all are completely rust-and-acid-resistant. Cleaning is simplified by the ease with which the extractor can be taken apart and washed, and the use of the special filter papers available virtually eliminates waste disposal problems. The Rotel Super Juicer costs £19 19s 0d. It is distributed by Fraikad Ltd, 139/141 Farringdon Road, London EC1.

New Water Cooler

Introduced with "completely new sculptured styling intended to complement the clean lines of modern architecture" is a new series of drinking water coolers, recently added to the Temprite group, known as the WF models. All plumbing connections are concealed within the cooler cabinet, permitting flush-to-wall installation. Floor space is conserved, and any difficulty of maintaining cleanliness in a narrow open area between wall and cooler has automatically been eliminated with this flush-to-wall feature. A highly durable heavy gauge steel cabinet is finished in a cool "mist-grey" enamel. The anti-splash top is extra deep polished stainless steel which, coupled with a water flow control valve, provides a uniformly smooth cool water stream, free of spurting or splashing. Both finger-tip and foot controls are standard on all models. Capacities range from 6 to 22 gallons per hour. Either air cooled or water cooled condensers are offered by Ad. Auriema Inc., 85 Broad Street, New York 4, N.Y.

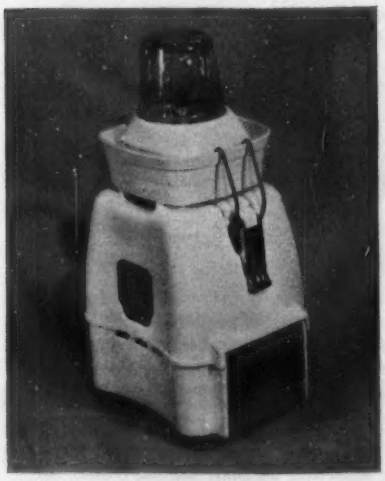
Pioneer Plastic Containers Ltd, of Great South West Road, Feltham, Middlesex, have recently introduced polystyrene wine glasses with a fluted design and small stem in 6-oz and 3-oz sizes.

The firm O. Kavli A/S, Bergen, Norway, now sells its famous Kavli cheese spreads in more than 50 countries, and there is an increasing market for its crisp-bread.

To cope with increasing business as specialists in catering equipment Leon Jaeggi & Sons Ltd have moved to larger premises at 232 Tottenham Court Road, London W1.

Apple sauce in a catering pack that can be used straight from the can without preparation is being marketed by Lockwoods Sales Ltd, 190/195 Piccadilly, London W1. First produced in the 8-oz consumer size, this product is now also available in the A10 can.

MR GEORGE J. CODDINGTON has been appointed national sales controller of Smith's Potato Crisps Ltd, in place of Mr Frederick T. Foxley, who has retired. Mr Coddington will be responsible for sales in England, Scotland, Wales and Ireland, where the company has opened its 19th and latest factory. Before joining Smith's he was sales manager of Scottish Export House Ltd and prior to that he was with the Seven-up Bottling Co Ltd, from 1951-56 as general manager and from 1956-60 as sales director.



LEFT: The Rotel Super Juicer

RIGHT: The Temprite water cooler

Food Research in the United Kingdom*

THE ROLE OF THE FOOD RESEARCH ORGANISATIONS

IT IS difficult to say where food research begins; it involves all the scientific disciplines—physics, chemistry, mathematics, engineering, each ultimately wedded to one or more of the different divisions of biology. Apart from supplying graduate staff, therefore, the universities must in the long run set the level of food research; they must also supply much of the fundamental knowledge required for advances in the science and technology of food. Certain of the universities with departments of agriculture and horticulture are, of course, carrying out continuous research directly on food, and this applies also to many biochemical departments.

The concern of the Government is clear enough since an adequate supply of inexpensive food of satisfactory nutritional quality is essential for our survival and for our national prosperity. Thus there are some 23 research institutes or units wholly financed by the Agricultural Research Council, and the Ministry of Agriculture, Fisheries and Food has its own Food Science and Atomic Energy Division.

The Agricultural Research Council is also concerned with the research programmes of 22 other institutes which are financed wholly or in part by the Council or, in the case of eight institutes in Scotland, by the Department of Agriculture for Scotland. Special grants are also made to universities and other organisations for research on subjects of interest to the Council. The total annual cost of all this research by the Council now exceeds £5 mn.

Food Research Advisory Committee

To help the Council in its wider responsibility the Ministry of Agriculture, Fisheries & Food and the Secretary of State for Scotland have recently set up a Food Research Advisory Committee to advise on those food problems requiring investigation or research and on their order of priority.

Finally, to complete the picture of food research institutes, mention must be made of the Torry Research Station of DSIR and its associated Humber Laboratory in Hull. Whereas these two laboratories are concerned with the very practical problems of improving the handling, storage and distribution of fish, their fundamental research—for example in bacteriology and that on fish oils and antioxidants—is of great interest and value to all food research laboratories.

On the nutritional side the Medical Research Council, with its many research units working directly on nutrition or in related fields, advises the Government through the Ministry of Health, and the Chief Medical Officer to the Ministry has his own Standing Committee to discuss problems of food and health.

Among more than 50 industrial research associations sponsored by the Department of Scientific & Industrial Research are four working wholly on food problems. The research carried out by these four bodies, whose work will be mentioned later, naturally has a strong bias generally, but not completely, towards the problems involved in the processing of food and its acceptability by the consumer.

There is in addition the research and, particularly, development carried out wholly by industry. The results of this are to be seen, for example, in the margarine and soft drinks industries, in the development of containers for canned foods, in the relatively new development of packaged frozen foods, and in the sizeable export trade mainly in processed foods (more than £160 mn annually) from a country so largely dependent on imported basal foods. Another notable example of research financed wholly by industry is that of the Brewing Industry Research at Nutfield, Surrey, now an established national institute.

The Food Research Associations

There are four research associations concerned wholly with food:

The British Baking Industries Research Association.
The Research Association of British Flour-Millers.
The British Food Manufacturing Industries Research Association.
The Fruit & Vegetable Canning & Quick Freezing Research Association, often referred to as the Campden Research Station.

The primary interest of each of these associations is to improve and standardise the manufacturing or processing methods and the quality of the final products of the particular industry it serves. In contrast with most of the research units associated with the Agricultural Research Council, the emphasis is on the factors *outside* the farm gate. At the same time the quality of the final product must be influenced by the quality of the raw material of the industry, and the methods of processing may alter its nutritional quality.

Apart from collaboration between themselves it is traditional and in fact essential for the food research associations to collaborate whenever possible with other laboratories that specialise in some particular aspect of food science and technology. This is usually of mutual advantage since the research association has its own specialised knowledge and equipment to offer.

British Baking Industries Research Association

The Association has contributed very considerably to the technology of continuous mixing processes for the production of bread, cake and biscuits. The most important developments have been in the field of continuous mixing of bread, with especial reference to the mechanical development process. This process makes possible the replacement of conventional bulk-fermentation of bread doughs, which normally takes several hours, by a short period (of the order of 1 minute) of intense mechanical action. This elimination of bulk fermentation results not only in great saving of time and costs but in an increase of yield, since fermentation losses are reduced to a minimum.

The Association has also introduced a batch process for mechanical dough-development, to the advantage of all sections of the industry and particularly to the smaller baker. Research that has led to a reduction in spoilage of the finished goods has included studies of anti-mould agents for use in bread and cake, and the development of deep freezing of baked products, including bread.

Research Association of British Flour-millers

Wheaten flour, unlike other flours, forms a dough with water. Knowledge of the elastic properties of this dough led to the development of a machine, the Research

* Abstracts from an article by T. Moran (Director of the Research Association of British Flour Millers), in consultation with W. B. Adam (Director, Fruit & Vegetable Canning & Quick Freezing Association), F. H. Banfield (Director, British Food Manufacturing Industries Research Association) and G. A. H. Elton (Director, British Baking Industries Research Association) published in the annual report for 1960 of the Department of Scientific & Industrial Research (HMSO, 8s).

Extensometer, now in general use in mills and bakeries for assessing the suitability of a sample of flour for bread or biscuits. Apart from this selection of particular wheats it is now possible to separate by air classification a sample of flour into a fraction of low protein-content, particularly suitable for cake or biscuits, and one of high protein-content for bread making. The necessary plant has already been installed in a number of mills.

British Food Manufacturing Industries Research Association

The flow properties of chocolate, especially that used for coating such items as biscuits and confectionery, are governed by pre-treatment during manufacture. The viscosity of molten chocolate has been investigated and a viscometer developed to work at the very low rates of shear obtaining in the commercial handling of this material. Similarly plastic properties govern the performance of fats used in baking in the factory or in the home. The development of a plastometer, by providing a method of objective assessment, has facilitated development work on the blending and conditioning of fats.

The very high reputation of the food canning industry is based in part upon the efficiency of the sterilising processes used. This Association's studies of the efficiency of the can seaming operations and of the operation of steam-heated retorts has contributed to the establishment of efficient canning techniques.

Fruit & Vegetable Canning & Quick Freezing Research Association

Peas are the chief vegetable crop for canning and quick freezing and must be harvested at the correct stages for these two types of product. Fundamental studies of the chemical changes occurring during the ripening of peas were first undertaken by the Association in 1933, and field trials on the changes in texture of peas as they mature have been conducted during most seasons since that time. The chief instrument for measuring the texture of peas is the tenderometer, which is now widely used to fix the price paid to the grower. Data collected at the Campden Research Station have helped in arranging the price-scales to be used, and a method for standardising the instrument has been worked out at the Station.

Heat processing is the key operation in canning, and many alternatives to the standard static retort or continuous automatic cooker have been considered and conditions for operation worked out. These include hydrostatic cookers, hot-air cookers, and spin cookers. Another adjunct to the heat process is the use of the antibiotic nisin to inhibit the growth of the most heat-resistant of non-pathogenic organisms. The mode of action of this antibiotic and the method of using it in vegetables that are to be shipped to tropical climates have been studied, and recommendations have been given to the manufacturers.

Other Research Associations

Perhaps the most obvious of these is the newly formed British Industrial Biological Research Association, which will investigate the effect on human health of the many substances used in food manufacture either as processing aids or for flavouring and colouring food, as well as those which get into food from pesticides, from plant used in food manufacture, from packaging materials or utensils.

Another organisation of importance to the food industries is the Printing, Packaging & Allied Trades Research

Association (PATRA). Briefly, its task as regards food has been to find suitable packages and packaging materials, special attention being paid to the shelf life of the product and the avoidance of any acquired odour or taint. The package must also be able to withstand all the mechanical hazards it may encounter during its distribution and retail sale. With the development of gas storage to prolong the storage life and colour of certain foodstuffs, particularly meats, the permeability of the container to atmospheric oxygen is often of critical importance.

Gelatine is used to an enormous extent in foods, particularly in such products as jellies and meat pies. The work of the British Gelatine & Glue Research Association is therefore of great interest to a large section of the food industry. One of the three common factors of all natural foods is protein, and the work of this association on the chemistry and structure of gelatine has been of stimulating interest to the four food research associations.

Finally, as an additional guarantee that the industrial food research organisations are kept in touch with one another, the Committee of Food Research Directors was formed five years ago. It now embraces not only the four food research associations, but also the Pest Infestation Laboratory, the Low Temperature Research Station, the Ditton Laboratory, Torry Research Station, Laboratory of the Government Chemist, the British Gelatine & Glue Research Association, and the Tropical Products Institute. It meets twice a year in one of the laboratories of its members.

The research associations are an essential part of the food research structure of this country. They have not only helped their associated food industries on the practical side, but have also made their contribution to the advancement of food science and technology and have helped to unify food research by their collaboration with institutes primarily concerned with food production. They have catalysed progress in food research and technology by influencing university departments and other institutes, which are organised on a more fundamental and less directly practical basis, to take an interest in industrial food research problems.

The Food & Cookery Centre

NEW CATERING ADVISORY SERVICE

A NEW Food & Cookery Centre Advisory Service for caterers is now in operation in a newly constructed kitchen at 39 Queen Street, London EC4. This latest department is a natural extension of the existing activities of the Centre. On behalf of the Unilever food companies—Batchelors, Smethursts, Wall's Ice Cream and Wall's Meat & Handy Foods—it offers a comprehensive advisory service on all aspects of catering. The three main spheres of work are carried out in close liaison with the original Centre but with the caterers' interests in mind:

1. *Test and Development*: This work includes preparation of instructions for label directions, suggesting and reporting on development products, and constant checks on products to ensure existing instructions are satisfactory and quality maintained.

2. *Creative Work*: The evolution and testing of new recipes, and serving suggestions, suitable for all aspects of the catering industry is the main part of creative work; food photography and the preparation of leaflets also come into this sphere.

3. *Demonstration Service*: Provides both lectures and practical presentations for groups of caterers from all sections of the industry.

The kitchen has been planned to fulfil a twofold purpose:—(1) To be equipped with catering size apparatus to give maximum efficiency when testing and developing products and recipes. (2) To be attractive as a background for displays and demonstrations put on for groups of caterers.

The kitchen is compact (465 sq ft in total area) and yet light and airy. It is also colourful, the main scheme of yellow and red cupboards and blue Formica tops matching the scattered coloured tiles in the white floor (Marleyflor tiling). All cupboard-top working surfaces are covered with Formica, except the two corners by the large cooking ranges—these have been covered with aluminium, to provide a surface where hot pans may be placed; to one of these metal tops has been fixed a large (Bonzer) can opener. The suspended acoustic ceiling hides a fair amount of heating, venting and gas installations.

Recommended Recipes

The equipment consists of gas and electric cooking ranges, fryers, and grills, a Swedish oven and upright freezer, a large domestic refrigerator and a Hobart mixer. The sinks are double-bowl and made of stainless steel. They have been built into a cupboard unit. Alongside is a Sissons Whirl-a-Waste disposal unit.

Miss Mary Shepherd is in charge of the Catering Advisory Service, and the following are some of the recipes which she recommends:—

A general view of the kitchen at the new Food & Cookery Centre operated by the Unilever food companies

Chilled Cucumber Soup

1 x 1 gallon pack Batchelors Chicken Noodle Soup
6 pints water
5 cucumbers
1½ pints single cream

Make the soup according to directions, using only 6 pints of water. Simmer for 10 minutes. Pour into an electric blender, add the flesh of half the cucumbers and blend until smooth. Cool, then stir in the cream and other half of the cucumbers cut into dice.

Chill thoroughly before serving.

Number of portions: 40.

Taramosalata (Smoked Cod's Roe Paté)

1 lb 8 oz smoked cod's roe
1 pint olive oil
8 tablespoons lemon juice
8 teaspoons chives, finely chopped
8 tablespoons parsley, finely chopped

Remove the skin carefully, chop the cod's roe into small pieces, then place in a bowl with a little oil. Leave to stand while preparing the remaining ingredients. Pass the roe through a fine sieve and beat well until smooth, and then beat in the remaining oil and the lemon juice, one tablespoon at a time until the paté is of a creamy consistency, similar to soft cream cheese. Add the finely chopped chives and parsley together with a little pepper to taste and leave to stand for a short while before serving.

Number of portions: 32.

Prawn and Melon Cocktail

2 lb 4 oz prawns
4 melons, cut into balls with a small scoop or cut into small dice
2½ pints cream salad dressing—(see recipe below)
3-4 lettuces
Paprika pepper

Place prawns in a basin, add melon and some of the cream dressing. Mix well together. Shred lettuce, place a little in each glass and put prawn mixture on top. Pour over a little extra dressing and sprinkle with paprika.

Serves 36 portions.

Cream Salad Dressing

9 egg yolks
2½ pints double cream
Mustard, to taste
3 tablespoons sugar
Salt, cayenne
½ pint white vinegar (approximately)

Beat egg yolks and add the cream. Cook carefully in a double saucepan until the mixture thickens like a custard. Combine the mustard, sugar, salt, cayenne and vinegar and add by degrees to the cream mixture. Stir frequently while cooking and use as required.

Cold Roast Duckling with Apricot and Almond Stuffing

Stuffing: 6 oz margarine
6 large onions, sliced
6 oz almonds, blanched and shredded
12 oz white, fresh breadcrumbs
4 teaspoons chopped parsley
4 x 8 oz cans apricots, drained and sliced
Rind and juice of 4 lemons
Salt and pepper to taste

6 Mac Ducklings, 3 lb in weight
Fat or dripping for roasting
Lettuce and orange slices to garnish

Make the stuffing as follows:—Melt the margarine and fry the onion until soft but not coloured, add almonds and fry quickly, 2-3 minutes. Add the remaining ingredients and mix well. Stuff the neck end and the body cavity of the duckling, then place it in a roasting tin with the melted dripping and baste well. Cook 1¼-1½ hours, basting once or twice. Remove from the roasting tin and allow to become cold.

Carve ducklings and arrange on a serving dish, garnished with the stuffing, slices of orange and lettuce.

Numbers of portions: 36.

THE SHIP'S MENU

SOME EXAMPLES OF MENUS RECENTLY PRESENTED

Blue Funnel Line

Some specimen menus from the Blue Funnel cargo vessels:

BREAKFAST

Grapefruit
Quaker Oats — Corn Flakes
Puffed Wheat — Grapenuts — Weetabix
Fried Fresh Herring
Grilled Bacon — Split Pork Sausages
Eggs: To Order — Omelet Plain—Cheese
Milk Scones — Preserves

LUNCHEON

Pineapple Juice
Cornish Pilchards — Tomato Sauce
Chicken Salad
Roast Pork — Chilli Spiced Pie — Ox Tongue
Galantine — Beetroot Salad and Fresh
Potato Straws
Fresh Fruit Salad and Cream
Biscuits — Cheese

DINNER

Consomme Julienne — Cream of Chicken
Poached Turbot Fillets — Anchovy Sauce
Saute Calves Kidney — Turbigo
Roast Quarters of Lamb — Mint Sauce
Roast and Boiled Potatoes — Vegetable Marrow
Cold: Ambassador Pudding — Strawberry Ice Cream
Canapes Coqueri
Dessert — Coffee

BREAKFAST

Papaya and Lemon
Quaker Oats — Shredded Wheat
Corn Flakes — Puffed Rice — Grapenuts
Kippered Herrings
Grilled Bacon — Fried Tomatoes
Eggs: To Order — Omelet Plain—Mushroom
Soda Scones — Preserves

LUNCHEON

Potage Egyptian — Eggs Au Gratin
Grilled Lamb Chops — Petit Pois
Garfield Potatoes — Macedoine Vegetables
Buffet: Melton Mowbray Pie — Roast Lamb
Roast Beef — Fresh Salad — Bologna Sausage
Pancakes: Lemon—Jam
Biscuits — Cheese

DINNER

Consomme Nantais — Creme Soubise
Fried Plaice Fillets — Tartare
Pressed Ox Tongue — Fresh Salad
Roast Ribs of Beef — Yorkshire
Roast and Boiled Potatoes — Dressed Cabbage
Pears Belle Helene — Salmon Canapes
Coffee — Dessert

BREAKFAST

Grapefruit
Oatmeal Porridge — Puffed Wheat
Bran Flakes — Weetabix — Corn Flakes
Creamed Fish on Toast
Eggs: To Order — Omelet Plain—Jambon
Light Cakes — Preserves

LUNCHEON

Mulligatawny Eggs Mexicaine Marine Pie
Boiled Potatoes Turnips Julienne
Buffet: Roast Lamb Roast Beef
Ox Tongue Fresh Salad Salami Sausage
Doughnuts Americaine
Biscuits Cheese

DINNER

Consomme Jardiniere Cream Garbure
Dublin Bay Scampi Tartare
Tongue and Ham Patties
Roast Veal Lemon Sauce
Roast and Boiled Potatoes French Beans
Steamed Cherry Pudding Strawberry Ices Sardine Canapes
Dessert Coffee

BREAKFAST

Water Melon
Quaker Oats Shredded Wheat
All Bran Rice Krispies Force
Finnan Haddock Au Beurre
Grilled Bacon Black Puddings
Eggs: To Order Omelet Plain—Onion
Buckwheat Cakes Preserves

LUNCHEON

Minestrone Spaghetti Calabraise
Farmhouse Grill
Garfield Potatoes Garden Peas
Buffet: Roast Lamb Roast Veal
Pressed Beef Fresh Salad Liver Sausage
Creamed Rice Pudding
Biscuits Cheese

DINNER

Consomme Garibaldi Tomato Soup
Fried Fillets of Brill Citron
Asparagus Tips Au Buerre
Roast Ribs of Beef Raifort Sauce
Roast and Boiled Potatoes Dressed Cabbage
Steamed College Pudding Chocolate Ice Cream
Salmon Croutes
Dessert Coffee

BREAKFAST

Tomato Juice
Oatmeal Porridge Corn Flakes
Puffed Rice Weetabix All Bran
Smoked Cod Fillets
Grilled Bacon Dry Hash Cakes
Eggs: To Order Omelet Plain—Clamart
Soda Scones Preserves

LUNCHEON

Leek Soup Salmon Kedgeree
Grilled Pork Sausages and Onions
Mashed Potatoes Haricot Beans
Buffet: Roast Beef Rost Lamb
Oxford Brawn Fresh Salad Ox Tongue
Berlin Doughnut Biscuits Cheese

DINNER

Consomme Mikado Creme Maryland
Escallops of Hake Mornay
Saute Ox Kidneys Turbigo
Roast Haunch of Veal Lemon Sauce

Roast and Boiled Potatoes Braised Spanish Onions
Apple Pie Vanilla Ice Cream
Scotch Woodcock
Dessert Coffee Cheese Biscuits

BREAKFAST

Honey Dew Melon Ginger
Quaker Oats Corn Flakes
Bran Flakes Weetabix Grapenuts
Kippered Herrings
Grilled Bacon Saute Lamb's Livers
Eggs: To Order Omelet Plain—Onion
Rice Cakes Preserves

LUNCHEON

Potage Egyptian Savoury Stew Casserole
Corned Silverside of Beef Dumplings
Baked Jacket and Creamed Potatoes Diced Carrots

Buffet: Roast Veal Roast Pork
Melton Mowbray Pie Fresh Salad Lunch Sausage
Bananas and Custard
Biscuits Cheese

DINNER

Consomme Russe Cream of Asparagus
Fried Scampi Chilli Sauce
Celery Hearts Au Jus
Baked York Ham Corn Fritters
Duchesse and Boiled Potatoes French Beans
Steamed Suet Pudding Syrup Chocolate Ices
Mixed Nuts Biscuits Cheese Coffee Dessert

The store rooms of the *Canberra* are well stocked with Huntley & Palmers' biscuits. Huntley & Palmers' biscuits were also ordered for the sea trials. In fact this was one of the largest ship stores orders ever supplied to a single ship by this firm.

Mr Leslie Hardern, public relations officer of the North Thames Gas Board, has been re-elected chairman of the Food Education Society's Industrial Division. This Division operates a food testing service for caterers. Monthly reports on various types of foods are circulated to members. Mr Hardern is also chairman of the executive committee of the Wine & Food Society and a Fellow of the Universal Cookery & Food Association. Dr W. F. Emery, F.H.C.I., was re-elected Hon Director of Research and Mrs J. R. Barnett was re-elected Hon Secretary.

The toilet compartments of the *Oriana* and *Canberra* have all been fitted with Jeyes porcelain toilet paper fittings and Jeyes toilet paper. Jeyes toilet holders are also approved by the Council of Industrial Design.

The French Line has ordered from the French Hoover company 160 British-made Hoover cleaners for the new French Line ship *France*, launched last year by Madame de Gaulle.

As a result of Thomas Harley & Co Ltd of Perth joining the Rentokil Group, their Rodine and Modine products are now handled nationally by representatives of Rentokil Products Ltd. In addition to the usual range of Rentokil products, they will now carry Rodine Phosphorus, Rodine Warfarin and Modine Mothproofer.

LM Furniture Ltd, contract furnishers of Wallingford, Berks, have supplied the *Oriana* with a total of 89 coffee tables with rosewood underframes and ebony tops. The original contract, consisting of 49 tables, has recently been increased by another order for 40 similar, but slightly smaller, tables. LM are also supplying the British India Line with 12 mahogany desks for their general office in London. The desks, measuring 4ft 6in by 2ft 6in, will have Formica tops veneered in amulet green.

The retirement of Mr Jack Mercer, after 42 years with Meredith & Drew Ltd, marks the end of a lifetime association with the biscuit trade.

WORLD WIDE DIRECTORY
of
SHIPCHANDLERS & FRESH PROVISIONS CONTRACTORS

A. Butchers.
B. Shipchandlers.
C. Fish & Poultry.
D. Dry Stores.
E. Vegetables & Fruit.
F. Bonded Warehouse.
G. Medical Supplies & Shipping Chemists.

Users of this Directory unable to find the Port or Contractor required are invited to contact:—

A. E. SHEPPARD & CO., LTD.,
(Members of Baltic Exchange)
Bevis Marks House, London, E.C.3.
'phone: Avenue 2671/2 cables: Aesalports London

who are prepared to deal with all enquiries.
Disputed accounts will also be impartially investigated.

Names and addresses of U.K. Representatives are given in full at the end of the directory.

ABERDEEN
W. R. Rix, 12, Commercial Quay, and 3, Trinity Quay—*ABCDEF*

ADELAIDE
W. Angliss & Co. (Aust.) Pty. Ltd., 108, Commercial Rd. Cables: "*Anglissco*"—*ABCDEF. U.K. Reps.* 16
Port Adelaide Providores Ltd., Tolley's Blds., Lipson St. Cables: "*Portadprov*"—*ABCDEF. U.K. Reps.* 15

ADEN
Kaiky Muncherjee, P.O. Box 1234. Cables: "*Kaiky*" - *ABCDEF. U.K. Reps.* 24
Cowasjee Dinshaw & Bros. (Aden) Ltd., Steamer Point. Cables: "*Cowasjee*"—*ABCDEF. U.K. Reps.* 18
Elite Stores, P.O. Box 1188, Steamer Point. Cables: "*Elite*"—*ABCDEF*
S. A. S. Mukerker & Bro., Steamer Point. Cables: "*Mukerker*"—*ABCDE. U.K. Reps.* 13
Spinney's (1948) Ltd., P.O. Box 1265, Steamer Point. Cables: "*Spinneys*"—*ABCDEF.* London Office: 11, Soho Square, W.1

ANTWERP
De Coster & Auwerkerken sprl., 48, Avenue d'Italie. Cables: "*Provinavir*"—*ABCDEF. U.K. Reps.* 18.

AUCKLAND
John Burns & Co. Ltd., P.O. Box 834—*ABCDEF*

AUGUSTA
Mellina Agosta., Catania, Messina, Augusta, Milazzo. Cables: "*Mellina*" 5, *Via Dogana, Augusta—ABCDEF*

AVONMOUTH
Harding Bros. (Shipping Contractors) Ltd., 253, Hotwell Rd., Bristol. Cables: "*Shipcon Bristol*"—*ABCDEF*

BARI
"Cianciola", Bari, Taranto, Brindisi, Barletta. Cables: "*Cianciporto*" *P.O. Box* 240, *Bari—ABCDEF*

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Finlay & Co., 12, Woodvale Rd. Cables: "*Reformer*"—*ACDEF. U.K. Reps.* 19
G. Heyn & Sons Ltd., Head Line Bldg. Cables: "*Heyn*"—*ABCDEF*

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Cawasji Behramji & Co., 298, Bazargate St., Fort. Cables: "*Cityice*"—*ABCDEF. U.K. Reps.* 15. PO.B. 852
Cowasjee Eduljee's Sons, Hanuman Bldg., Fort. Cables: "*Palisade*"—*ABCDEF. U.K. Reps.* 11
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The Algerian Supply Stores, 4, Rue Menochet. Cables: "*Boulgerian Bougie*"—*ABCDEF. U.K. Reps.* 5

BREMEN
Gebr. Schoemaker Schiffsausrustungen, 29, Schlachte. Cables: "*Auruestung*"—*ABCDEF. U.K. Reps.* 2, 18

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Oceanic Ship Supply Co., Azopardo 473. Cables: "*Oceanic*"—*ABCDE. U.K. Reps.* 8

BUNBURY (WEST AUSTRALIA)
Benson & Crute, Bunbury Ship Providors., 91, Victoria Street. Cables: "*Benson Crute*"—*ABCDEF. U.K. Reps.* 15 and 20.

CALCUTTA
Alex Miller (Merchants) Private Ltd., 137, Canning St. Cables: "*Drillchuck*"—*ABCDEF. U.K. Reps.* 22
Alex Miller (Shipchandlers) Private Ltd., P.O. Box 739. Cables: "*Replenish*"—*BCDEF. U.K. Reps.* 8
R. C. Mitter, Pio C.I.T. Road. Cables: "*Mitter Pio C.I.T. Road*"—*ABCDEF*
B. M. Mookerjee & Co., 74, Bentinck St. Cables: "*Workwell*"—*ABCDEF. U.K. Reps.* 13

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CARDIFF
Robb, Moore & Neill Ltd., Douglas Bldgs., East Canal Wharf, Bute Docks. Cables: "*Shipchand*"—*ABCDEFG*

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Hellenic & International Ltd., (George E. Amanatides), P.O. Box 87 and Plaza Vieja 19. Cables: "*Greco*"—*ABCDEF. U.K. Reps.* 3

COPENHAGEN
Sidney Strufves Succrs. Ltd., 21, Hannegade. Cables: "*Shipsidney*"—*ABCDEF.* Telex No. 5471. *U.K. Reps.* 4

CORK
Clayton Love & Sons (Cork) Ltd., 18, Coach St., and 14, West Beach, Cobh, Co. Cork. Cables: "*Lobster*"—*ABCDEF*

DJIBOUTI (FRENCH SOMALILAND)
Djibouti Supply Co., E. Dascalakis & Co., P.O. Box 157. Cables: "*Daras*"—*ABCDEF. U.K. Reps.* 18

DUBLIN
Clayton Love & Sons (Dublin) Ltd., Corporation Markets. Cables: "*Lobster*"—*ABCDEF*

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M. & R. Dekytspotter, Boite Postale 49. Cables: "*Provisions*" —*ABCDEF. U.K. Reps.* 11

EMDEN
Emder Schiffsausrustungs G.m.b.H. 1, Hafeneinschnitt. Cables: "*Shipchandler*"—*ABCDEF. U.K. Reps.* 5, 9, 13, 27
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A. E. Monsen (Falmouth) Ltd., 46/47 Arwenack St. Cables: "*Falmouth* 144"—*ABCDEF.*

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Layam & Co., Ltd., P.O. Box 1312. Cables: "*Layam*"—*ABCDEF*

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Clayton Love & Sons (Deutchland), G.m.b.H., Hopfensack 8. Cables: "*Lobster*" —*ABCDEF*
Desag Morck & Co. G.m.b.H., Brooktorquai 16. Cables: "*Desagstores*"—*ABCDEFG*
Hanseatic Schiffsausrustung, Fricke & Lanker, Alter Wandrahm 8, Cables: "*Shipchandlers*"—*ABCDEFG. U.K. Reps.* 22

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Magnus Ship Chandlery, 1, Obispo St. Cables: "*Magnuship*"—*ABCDEF. U.K. Reps.* 18

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Dairy Lane Ltd., Windsor House, Des Voeux Road. Cables: "*Dairylane*"—*ABCDEF. U.K. Reps.* 4
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Atlantic Steamers Supply Co. Inc., 7118, Navigation Blvd. Cables: "*Atlantsteam*"—*ABCDEF*

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Desag Morck & Co. G.m.b.H., Schleuse, Kiel-Holtenau. Cables: "*Desag Kielholtenau*"—*ABCDEFG*
Zerssen & Co., Kiel-Canal. Cables: "*Zerssen Kielholtenau*"—*ABCDEFG. U.K. Reps.* 18

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Fuji Trading Co. Ltd., 34, Nishimachi, Ikuta-Ku. Cables: "*Fujitrade*"—*ABCDEF*
Scandinavian Enterprises Ltd., 3, Kaigan-Dori, Ikuta-Ku, Kaigan Building 108-B. Cables: "*Skandia*"—*ABCDEF*
S.U. & Co. Ltd., 9, 2-Chome, Kaigan-Dori, Ikuta-Ku. Cables: "*Sucompany*"—*U.K. Reps.* 18

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Mohammed Ahmed Hussain, P.O. Box 765. Cables: "*Mahussain*"—*ABCDEF*

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